

RMD Kwikform

Technical Data Sheets

Metric Specification

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Rapid Reference – Rapidshor Components

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RSU40675	Rapidshor Standard OE 675mm	3.04kg	8
RSX10001	Rapidshor U-Plate 8 thk x 220mm Wide	5.73kg	18
RSX10002	Rapidshor Base 165mm	3.08kg	16
RSX10003	Rapidshor Brace U-Head 182mm Wide	6.65kg	16
RSX10004	Rapidshor Jack 25-540mm	6.12kg	15
RSX10005	Rapidshor Joint Sleeve 300mm	1.53kg	9
RSX10006	Rapidshor Tilt Base	7.65kg	17
RSX10007	Rapidshor Tilt Head 182mm Wide	13.1kg	17
RSX10008	Rapidshor U-Plate 8 thk x 182mm Wide	5.31kg	18
RSX10009	Rapidshor Sleeve Clip	0.09kg	9
RSX10010	Rapidshor Base Sleeve 216mm	1.14kg	9
RSX11500	Rapidshor Standard 1500mm	8.32kg	6
RSX12500	Rapidshor Standard 2500mm	15.1kg	6
RSX20300	Rapidshor Ledger 300mm	2.16kg	10
RSX20600	Rapidshor Ledger 600mm	3.22kg	10
RSX20900	Rapidshor Ledger 900mm	4.29kg	10
RSX21200	Rapidshor Ledger 1200mm	5.36kg	10
RSX21500	Rapidshor Ledger 1500mm	6.43kg	10
RSX21800	Rapidshor Ledger 1800mm	7.49kg	10
RSX22400	Rapidshor Ledger 2400mm	9.63kg	10
RSX23000	Rapidshor Ledger 3000mm	11.8kg	10
RSX30001	Rapidshor Brace—Long Adjustable	11.4kg	13
RSX30002	Rapidshor Brace—Short Adjustable	8.09kg	13
RSX30003	Rapidshor Brace—Super Short Adjustable	6.42kg	13
RSX31009	Rapidshor Brace 1000 x 900mm	4.85kg	11
RSX31012	Rapidshor Brace 1000 x 1200mm	5.43kg	11
RSX31509	Rapidshor Brace 1000 x 1500mm	6.11kg	11
RSX31018	Rapidshor Brace 1000 x 1800mm	7.98kg	11
RSX31024	Rapidshor Brace 1000 x 2400mm	9.88kg	11
RSX31509	Rapidshor Brace 1500 x 900mm	6.11kg	11
RSX31512	Rapidshor Brace 1500 x 1200mm	6.55kg	11
RSX31515	Rapidshor Brace 1500 x 1500mm	8.31kg	11
RSX31518	Rapidshor Brace 1500 x 1800mm	9.06kg	11
RSX31524	Rapidshor Brace 1500 x 2400mm	12.9kg	11
RSX32012	Rapidshor Brace 2000 x 1200mm	9.17kg	11
RSX32015	Rapidshor Brace 2000 x 1500mm	7.51kg	11
RSX32018	Rapidshor Brace 2000 x 1800mm	12.4kg	11
RSX32024	Rapidshor Brace 2000 x 2400mm	14.2kg	11
RSX41000	Rapidshor Standard OE 1000mm	5.39kg	7
RSX41500	Rapidshor Standard OE 1500mm	8.02kg	7
RSX42000	Rapidshor Standard OE 2000mm	10.8kg	7
RSX42500	Rapidshor Standard OE 2500mm	13.5kg	7
RSX70003	Rapidshor Stair Handrail	11.0kg	20
RSX70006	Rapidshor Stair Unit	70.0kg	20

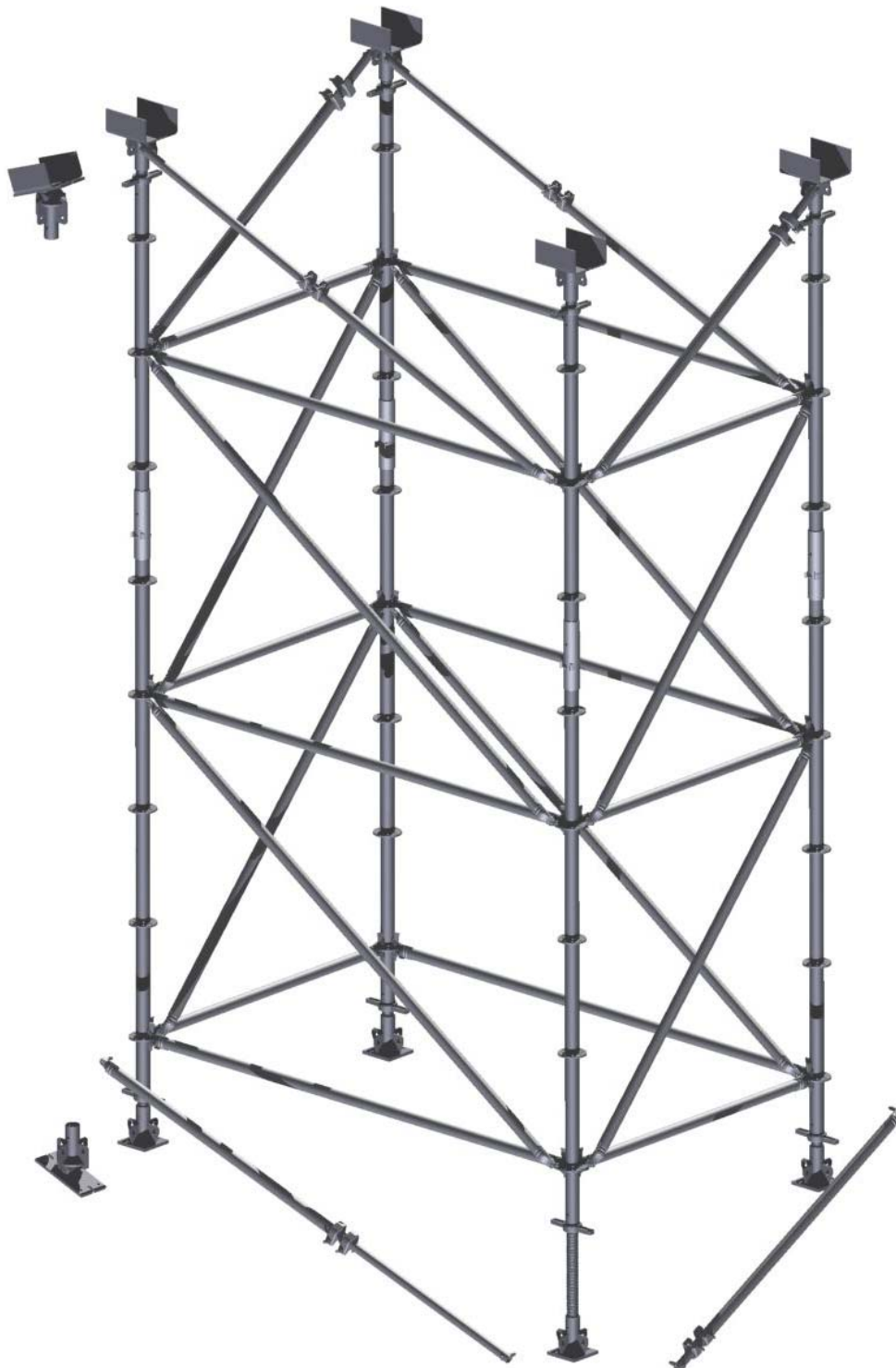
RAPIDSHOR

80 kN SHORING SYSTEM



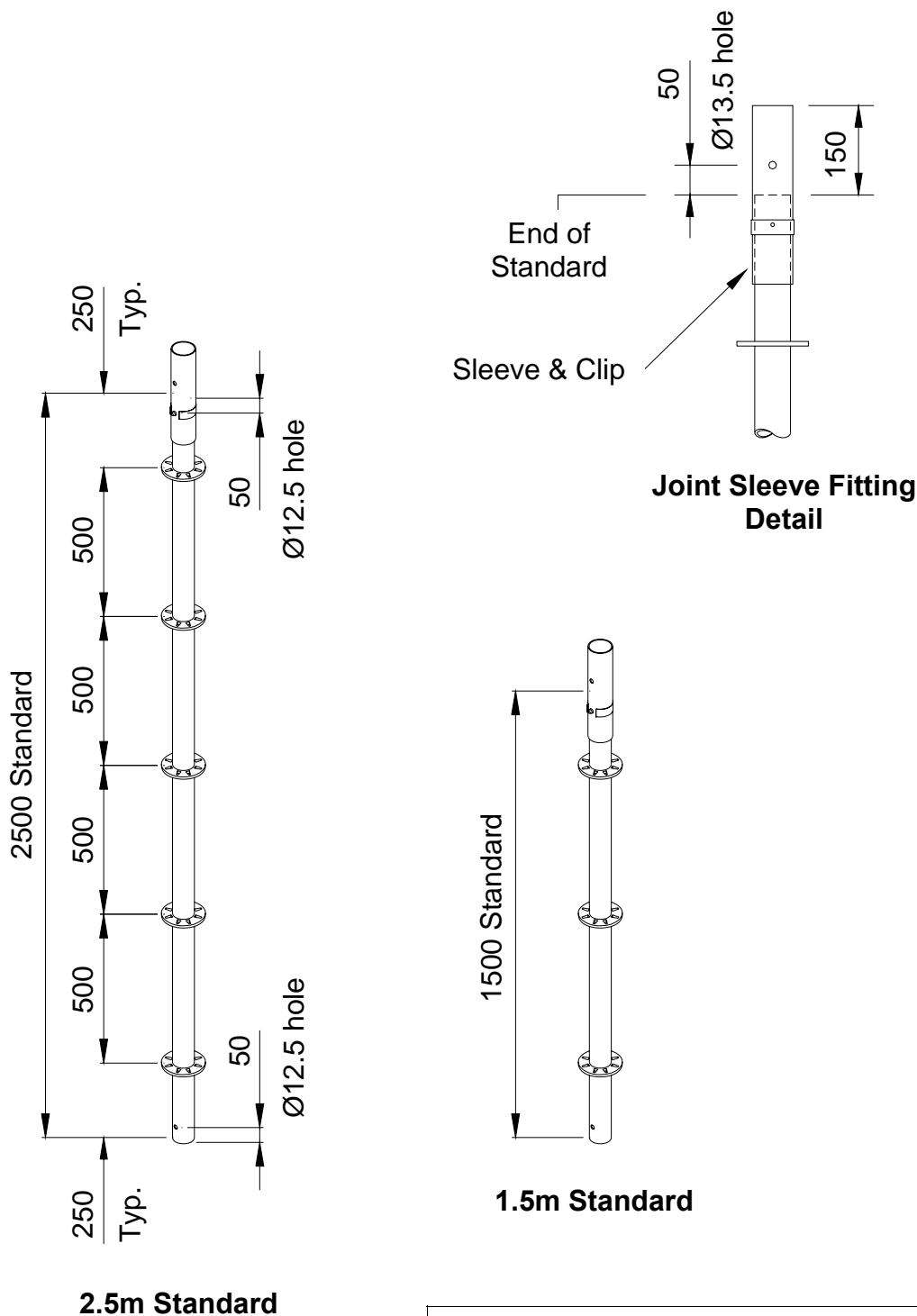
Introduction

Rapidshor is RMD Kwikform's premier steel shoring system. It is a safe, robust, easy to use modular system which boasts an impressive 80kN SWL. Its circular slotted lugs give it the unique ability to tackle skewed bridge decks. The system has established an excellent pedigree having been used on thousands of structures Worldwide.



Standards

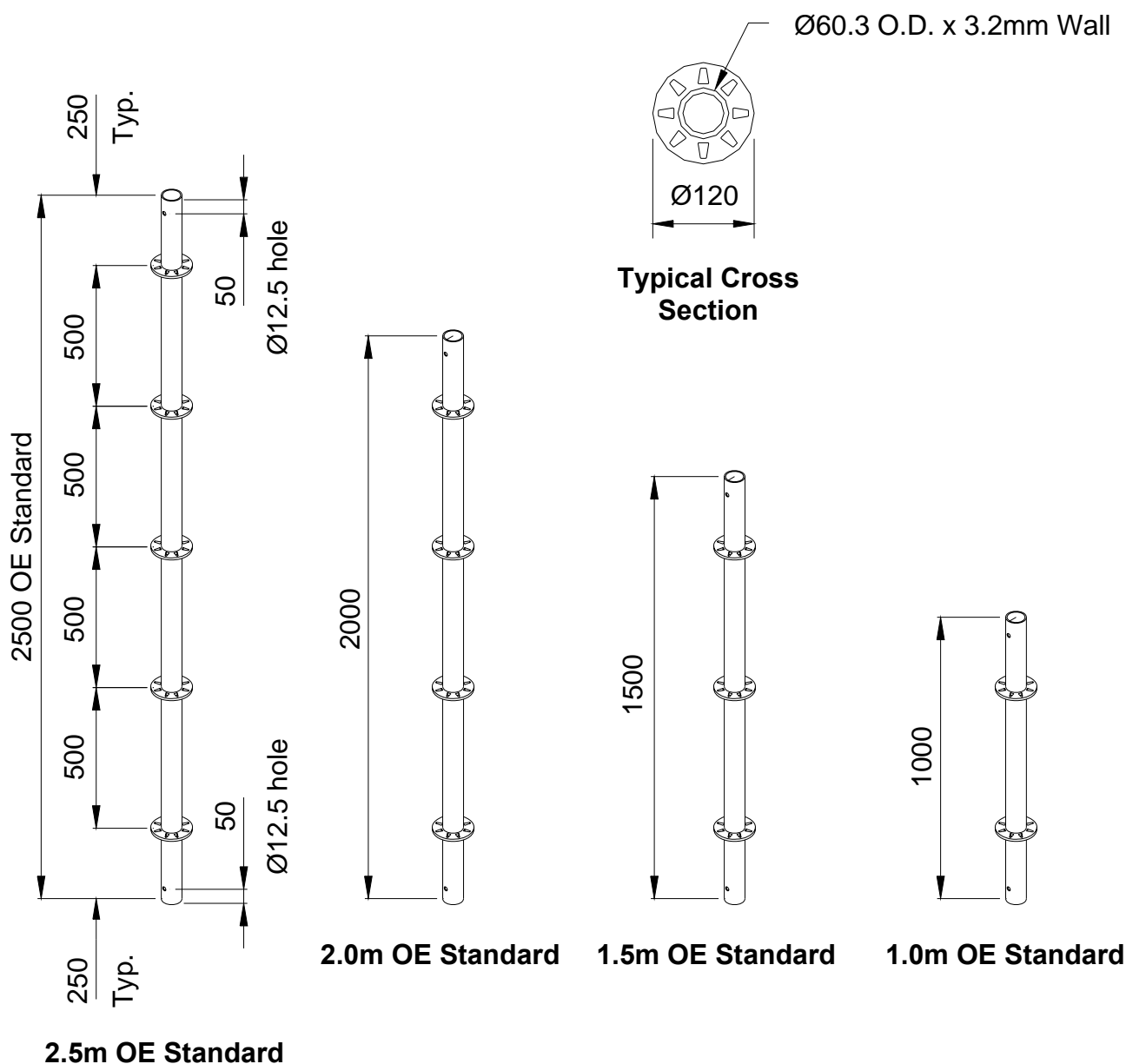
Used to carry the loads to the foundation. Allowable working loads in compression depend on effective strut length. Refer to the loading graphs in the Design Data Section. Standards come complete with a joint sleeve giving the fastest possible assembly time.



Code	Description	Weight
RSX12500	Rapidshor Standard 2500mm	15.1 kg
RSX11500	Rapidshor Standard 1500mm	8.32 kg

Open Ended Standards

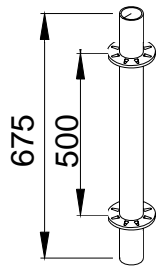
Identical to the Standards, but come without the captive joint sleeve.



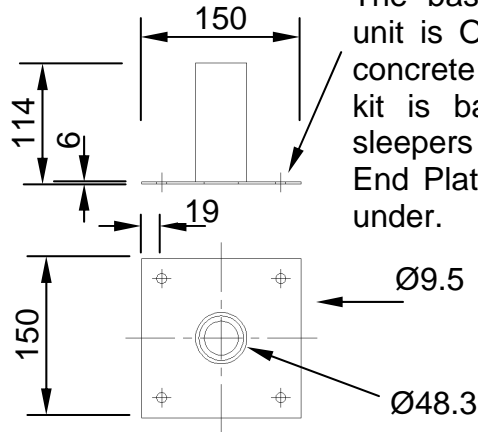
Code	Description	Weight
RSX42500	Rapidshor Standard OE 2500mm	13.5 kg
RSX42000	Rapidshor Standard OE 2000mm	10.8 kg
RSX41500	Rapidshor Standard OE 1500mm	8.02 kg
RSX41000	Rapidshor Standard OE 1000mm	5.39 kg

Shortened Standards

For use with Rapidshor Jack 25-540mm or Rapidshor Short Jack 25-340mm on falsework with low propping heights.

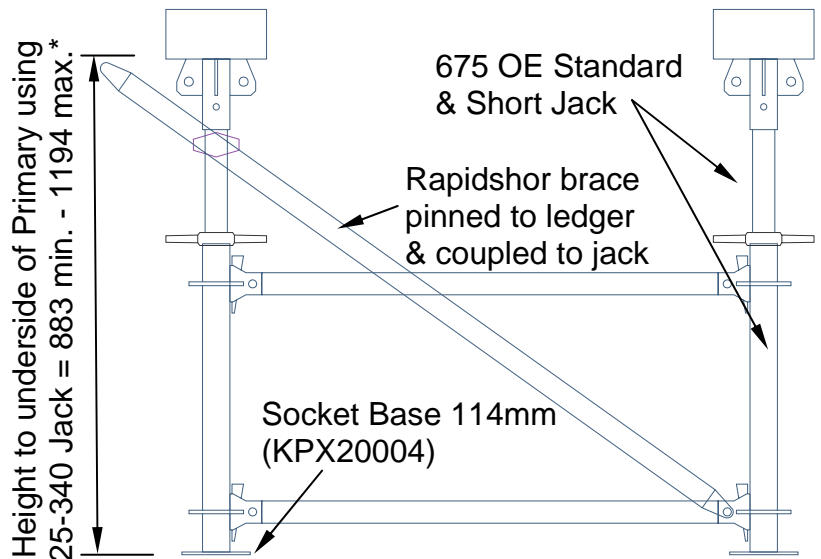
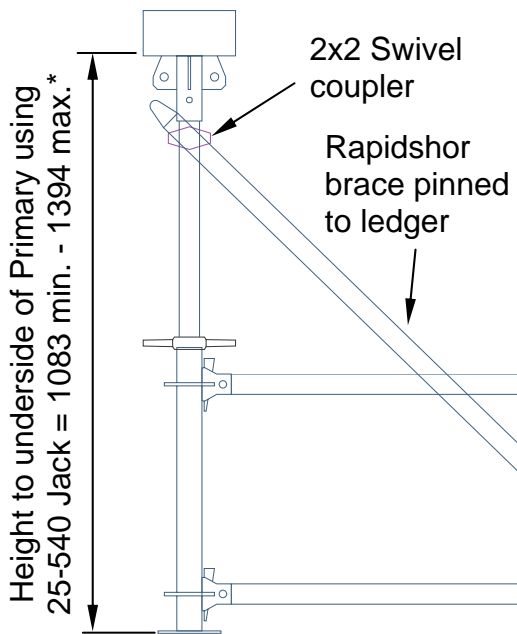


675 OE Standard



**Socket Base
114mm**

The base plate on this unit is OK for use on a concrete slab but if the kit is based on timber sleepers a Superslim End Plate must be used under.



* min-max dimensions do not include 10mm Superslim End Plate

IMPORTANT!

Bracing to this arrangement should be made using standard braces as shown or tube & fittings. Adjustable Jack Braces will not span over the 500mm ledger lift height when using both captive fixing pins.

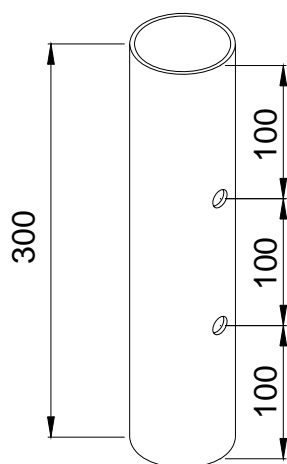
Note: This Standard does not have $\varnothing 12.5$ holes to permit connection using Rapidshor Sleeve Clips.

Code	Description	Weight
RSU40675	Rapidshor Standard OE 675mm	3.04 kg
KPX20004	Socket Base 114mm	1.51 kg
SSX10040	Superslim End Plate 10mm	2.91 kg
SFX10003	Coupler - Swivel 2"x2"	1.48kg

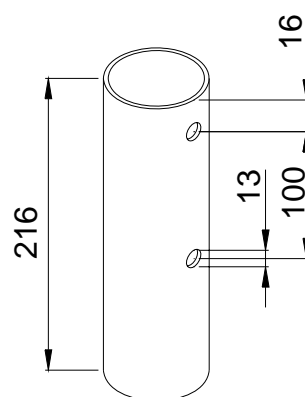
Rapidshor Sleeves

An external sleeve used at the joints between Open Ended Standards in the leg makeup. Fixed to standards using Rapidshor Sleeve Clips.

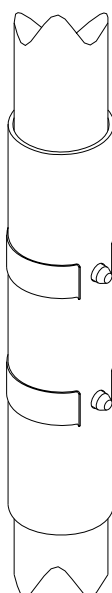
The base sleeve is shorter to avoid the brace lugs when using a fixed head or base.



Joint Sleeve 300mm



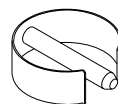
Base Sleeve 216mm



Tension Joint

Add a second
Sleeve Clip when
tension is expected

Use a single
Sleeve Clip for most
applications



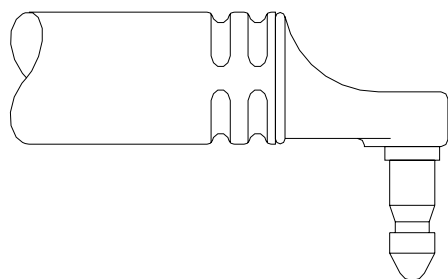
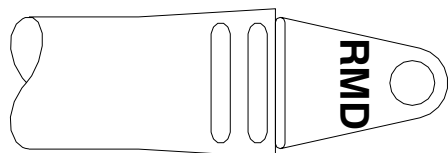
Sleeve Clip

Code	Description	Weight
RSX10005	Rapidshor Joint Sleeve 300mm	1.53 kg
RSX10010	Rapidshor Base Sleeve 216mm	1.14 kg
RSX10009	Rapidshor Sleeve Clip	0.09 kg

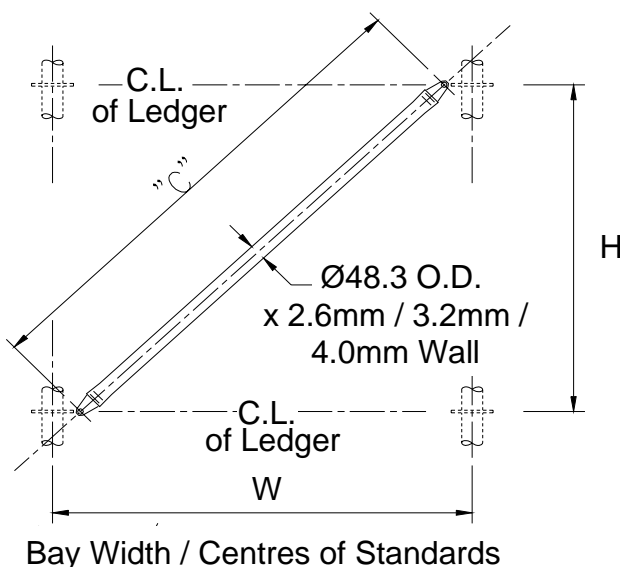
80 kN SHORING SYSTEM

Bracing

Bracing is achieved using fixed length braces. Each brace has a forging at each end, which contains a shaped pin that snaps quickly into the Rapidshor Ledger ends.



Typical End Detail



Code	Description (H x W)	Pin Centres (C)	End Colour	Weight
RSX31009	Rapidshor Brace 1000 x 900mm	1244mm	Self	4.85 kg
RSX31012	Rapidshor Brace 1000 x 1200mm	1443mm	Purple	5.43 kg
RSX31018	Rapidshor Brace 1000 x 1800mm	1921mm	Red	7.98 kg
RSX31024	Rapidshor Brace 1000 x 2400mm	2453mm	White	9.88 kg
RSX31509	Rapidshor Brace 1500 x 900mm *	1673mm	Yellow	6.11 kg
RSX31512	Rapidshor Brace 1500 x 1200mm	1825mm	Pink	6.55 kg
RSX31515	Rapidshor Brace 1500 x 1500mm	2011mm	Orange	8.31 kg
RSX31518	Rapidshor Brace 1500 x 1800mm	2223mm	Green	9.06 kg
RSX31524	Rapidshor Brace 1500 x 2400mm	2696mm	Brown	12.9 kg
RSX32012	Rapidshor Brace 2000 x 1200mm	2254mm	Blue-Green	9.17 kg
RSX32015	Rapidshor Brace 2000 x 1500mm	2407mm	Yellow	7.51 kg
RSX32018	Rapidshor Brace 2000 x 1800mm	2586mm	Black	12.4 kg
RSX32024	Rapidshor Brace 2000 x 2400mm	3003mm	Bright Red	14.2 kg

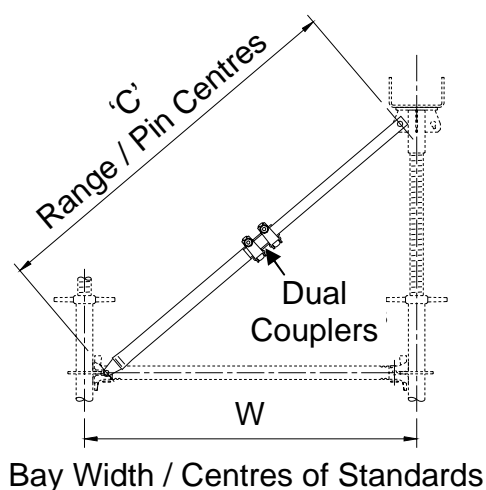
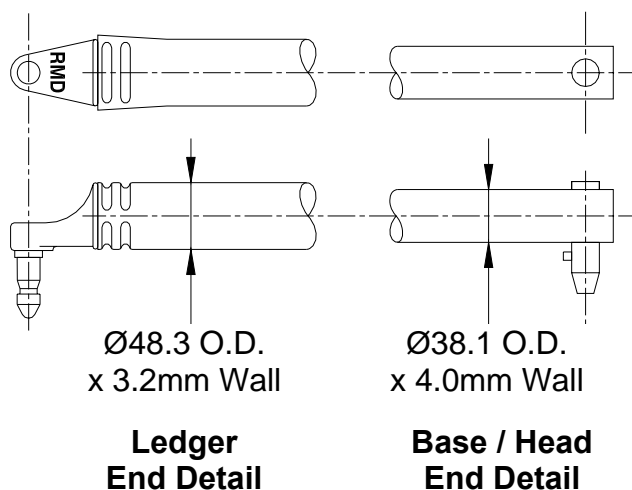
*** This brace also fits a 1000h x 1500mm bay (Pin C/C 1672mm)**

Brace Loads

Brace Code	Panel Size			Axial SWL		Bay Shear SWL			Vertical Load Induced in Leg	
	Width mm	Height mm	Pin Centres mm	Comp kN	Tension kN	Comp kN	Tension kN	Rev'sed Pair kN	Comp kN	Tension kN
RSX31009	900	1000	1244	15.70	16.25	9.34	9.67	19.01	12.62	13.06
RSX31015		1500	1673	10.50	16.25	4.65	7.19	11.83	9.42	14.57
RSX30001		2000	2133	6.25	6.25	2.17	2.17	4.34	5.86	5.86
RSX31012	1200	1000	1443	13.00	16.25	9.37	11.71	21.08	9.01	11.26
RSX31512		1500	1825	10.20	16.25	5.81	9.26	15.07	8.38	13.35
RSX32012		2000	2254	6.60	16.25	3.04	7.50	10.54	5.86	14.42
RSX31015	1500	1000	1672	10.50	16.25	8.42	13.02	21.44	6.28	9.72
RSX31515		1500	2011	10.50	16.25	7.00	10.83	17.82	7.83	12.12
RSX32015		2000	2407	6.00	16.25	3.34	9.05	12.38	4.98	13.50
RSX31018	1800	1000	1921	11.80	16.25	10.07	13.87	23.95	6.14	8.46
RSX31518		1500	2223	7.00	16.25	5.17	11.99	17.16	4.72	10.97
RSX32018		2000	2586	9.00	16.25	5.71	10.30	16.01	6.96	12.57
RSX31024	2400	1000	2453	5.90	16.25	5.39	14.84	20.23	2.41	6.62
RSX31524		1500	2696	8.00	16.25	6.65	13.50	20.15	4.45	9.04
RSX32024		2000	3003	7.00	16.25	5.22	12.12	17.34	4.66	10.82

Jack Bracing

Adjustable in length to suit the varying jack extensions. One end contains a key style pin, which connects to the keyhole shaped holes in the base/head unit first. The other end is the same as fitted to the fixed length braces and is fitted second.

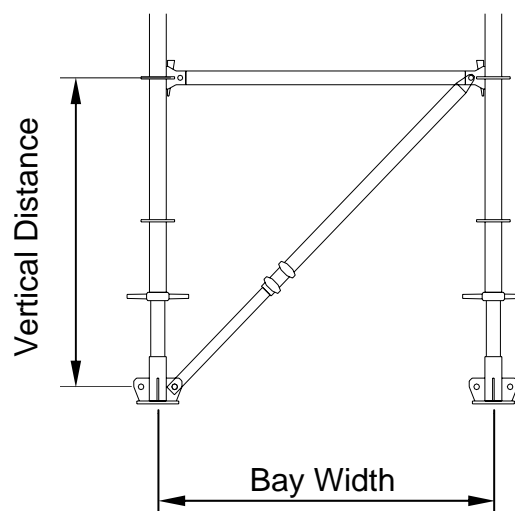
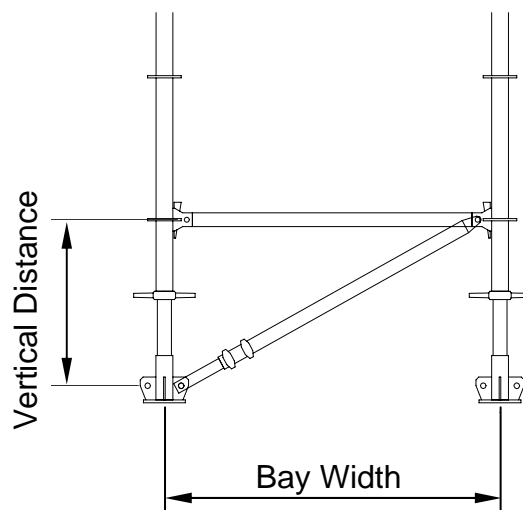
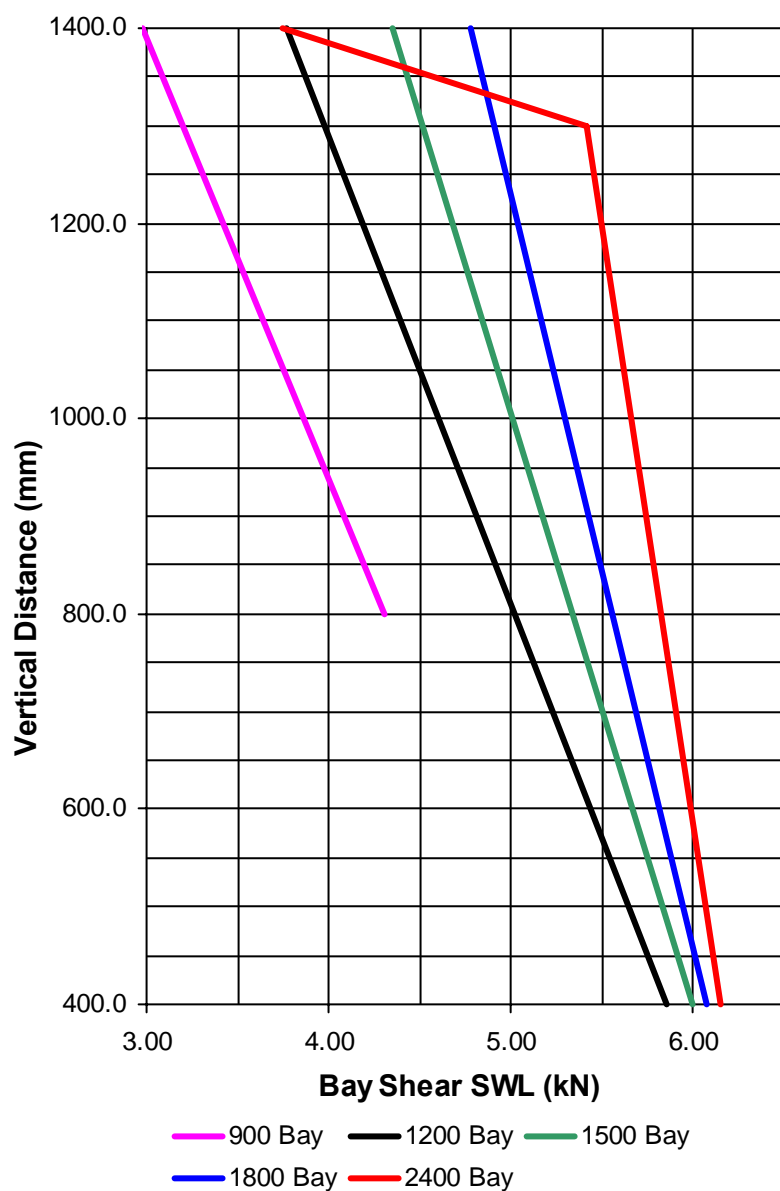


IMPORTANT!

Adjustable Jack Braces should not be used in 600mm wide bays when the ledger is at 2nd disc position (750mm from end of standard) and the head / base jack extension exceeds 400mm.

Code	Description (H x W)	Range / Pin Centres (C)	Weight
RSX30001	Rapidshor Brace—Long Adjustable	1530—2660 mm	11.4 kg
RSX30002	Rapidshor Brace—Short Adjustable	1085—1770 mm	8.09 kg
RSX30003	Rapidshor Brace—Super Short Adjustable	840-1280 mm	6.42 kg

Adjustable Braces



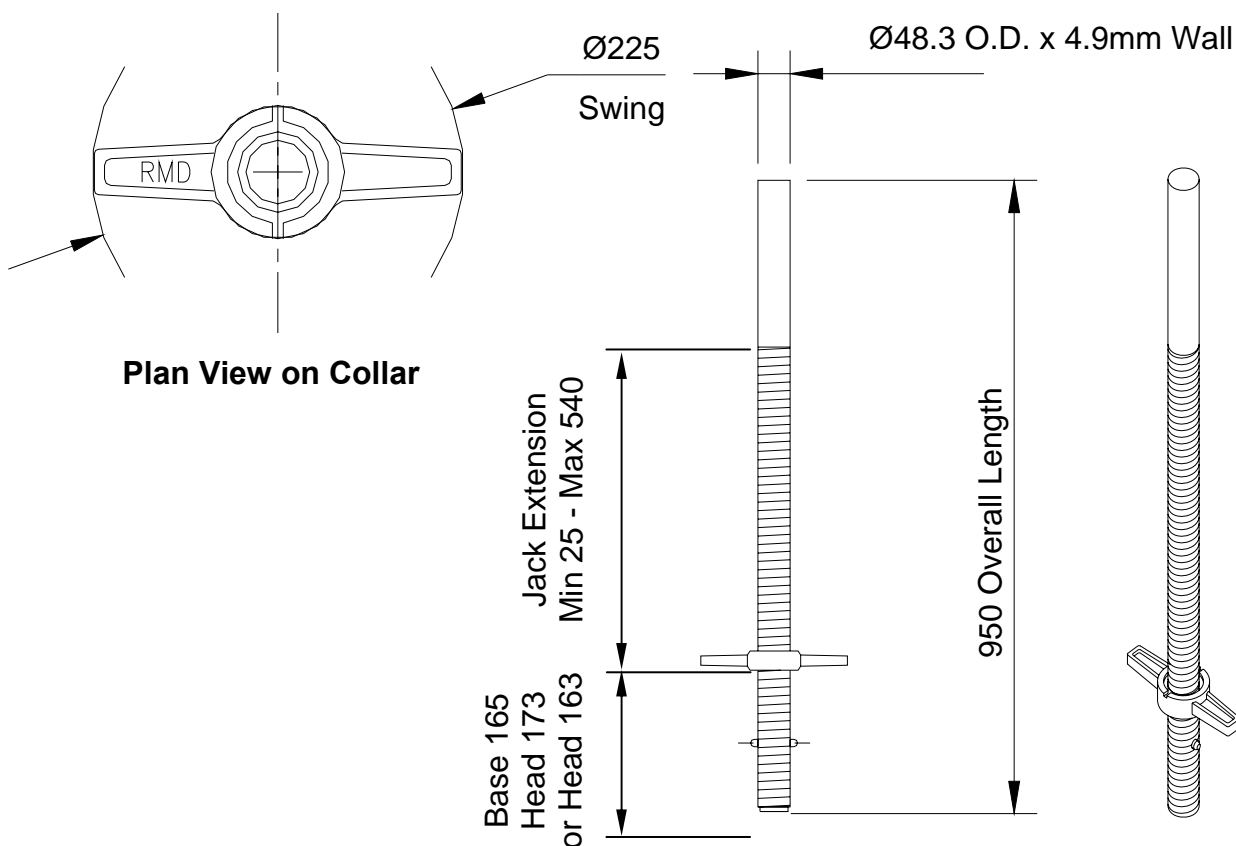
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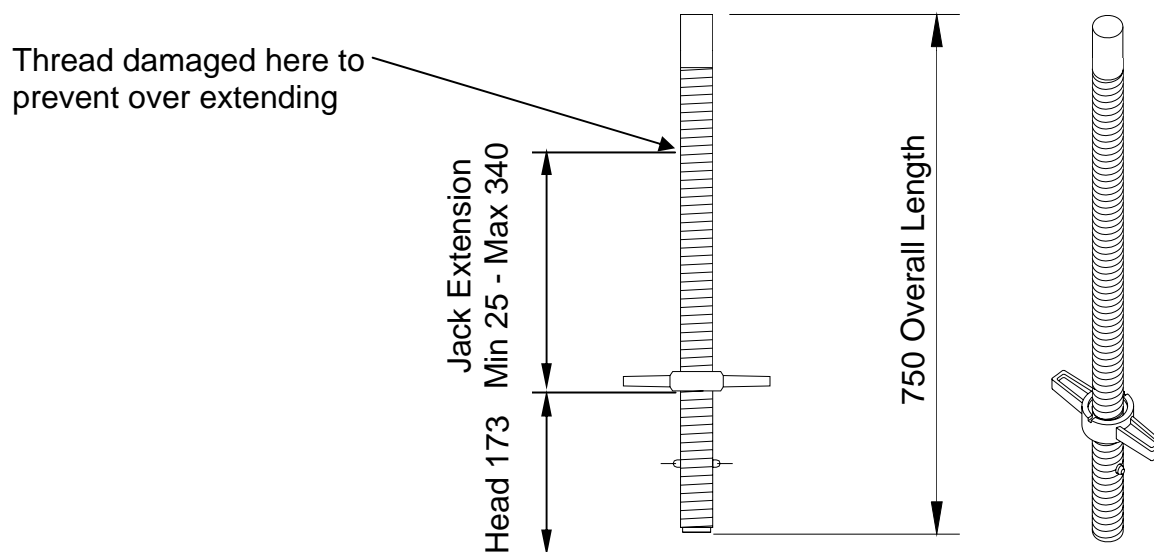
Rapidshor Jack 25-540mm - RSX10004 (6.12kg)

A universal jack used with all Rapidshor heads and bases. Captive spring buttons aid connection to the heads and bases.



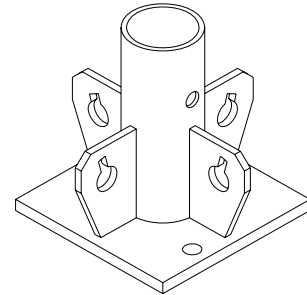
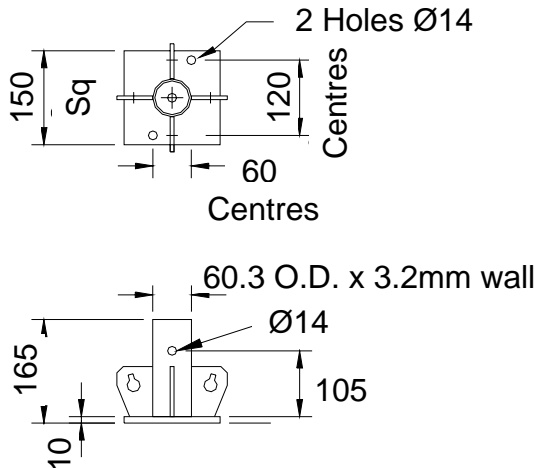
Rapidshor Short Jack 25-340mm - RSU10340 (5.03kg)

Used with 675mm Standards and Socket Bases in restricted propping height applications.



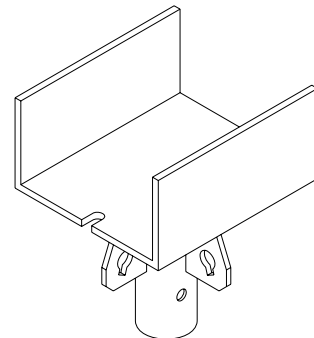
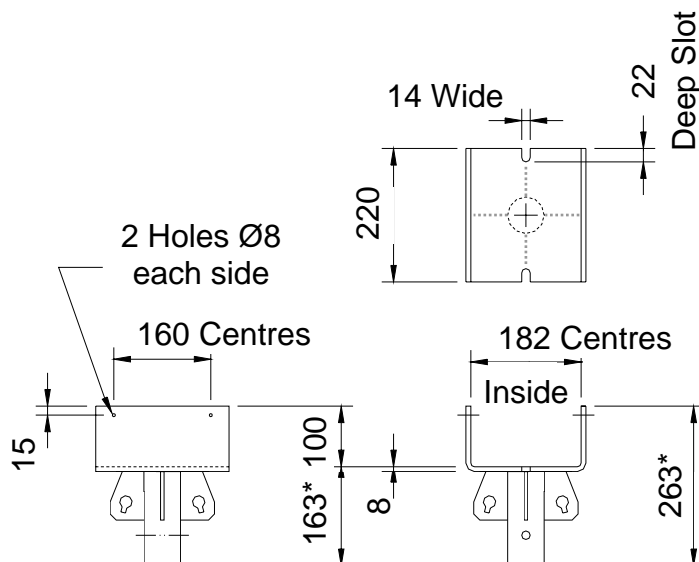
Rapidshor Base 165mm - RSX10002 (3.08kg)

Used as either a fixed base with the Base Sleeve 216mm, or an adjustable base when used with a Rapidshor Jack. When used with a Rapidshor Jack, the Rapidshor Base can rotate up to 2.5 deg in either direction.



Rapidshor Brace U-Head 182mm Wide - RSX10003 (6.65kg)

Used as either a fixed head with the Base Sleeve 216mm, or an adjustable head when used with a Rapidshor Jack. When used with a Rapidshor Jack, the Rapidshor head can rotate up to 2.5 deg in either direction.



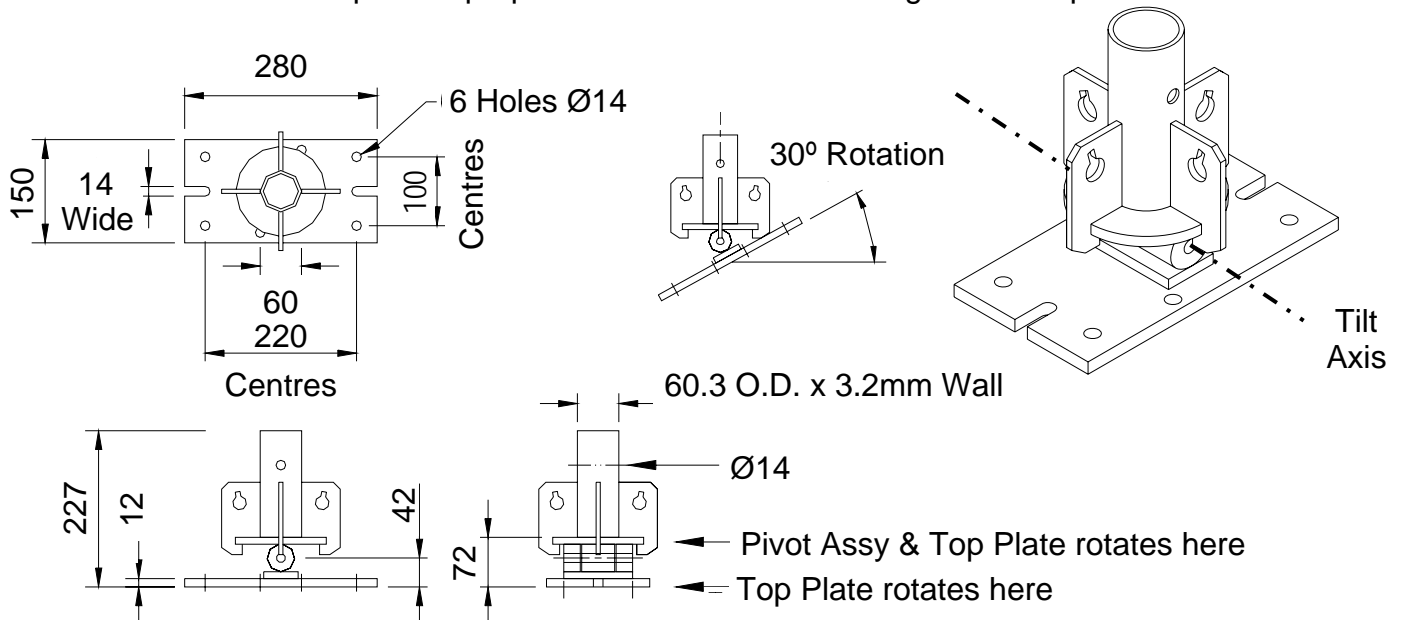
Important!

There is currently a variant of this U-Head in the Fleet with the same item code made from a Rapidshor Base 165mm bolted to a Rapidshor U-Plate 8 thk x 182mm Wide - see sheet 18. For this head the dimensions marked thus * should read 173mm & 273mm respectively.

Care should be taken not to mix these head units on schemes which have no head jacks.

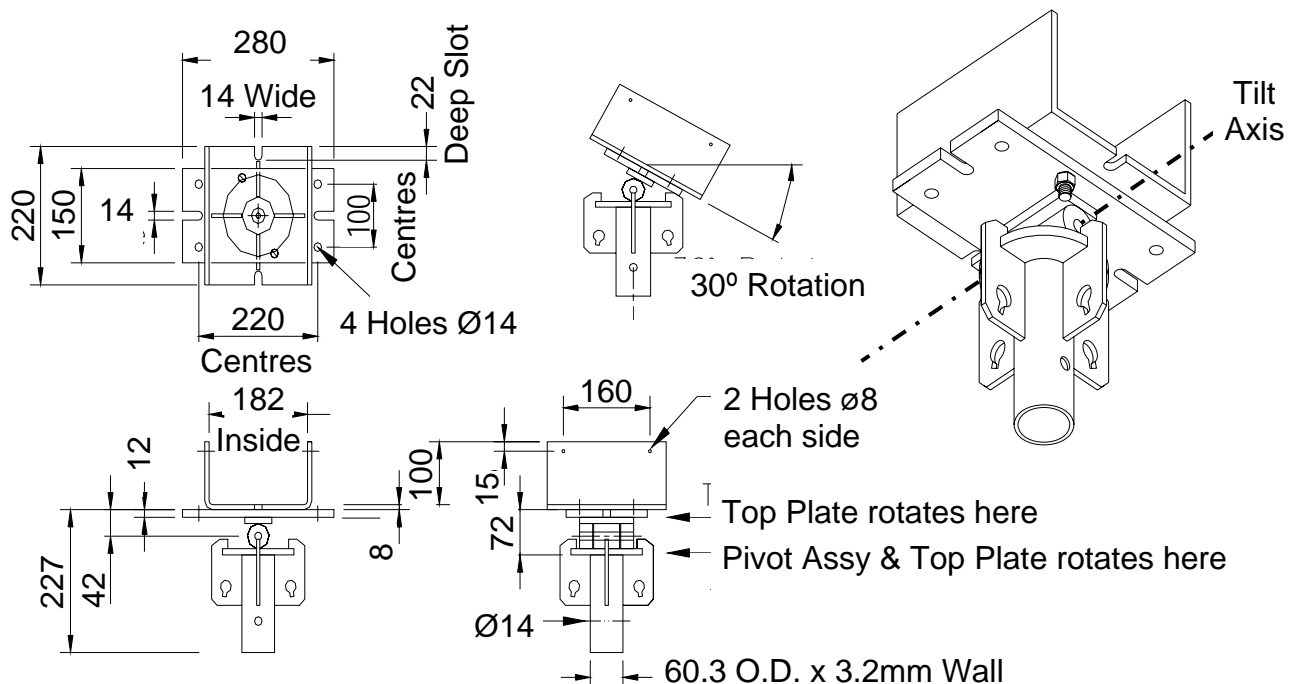
Rapidshor Tilt Base - RSX10006 (7.65kg)

Normally used with a Rapidshor Jack, but can be used with a Base Sleeve 216mm to make a fixed tilt base if required. Rotates up to 30 deg using the tilt axis and 2.5 deg in any other direction. Ensure that the tilt axis is placed perpendicular to the line of the greatest slope.



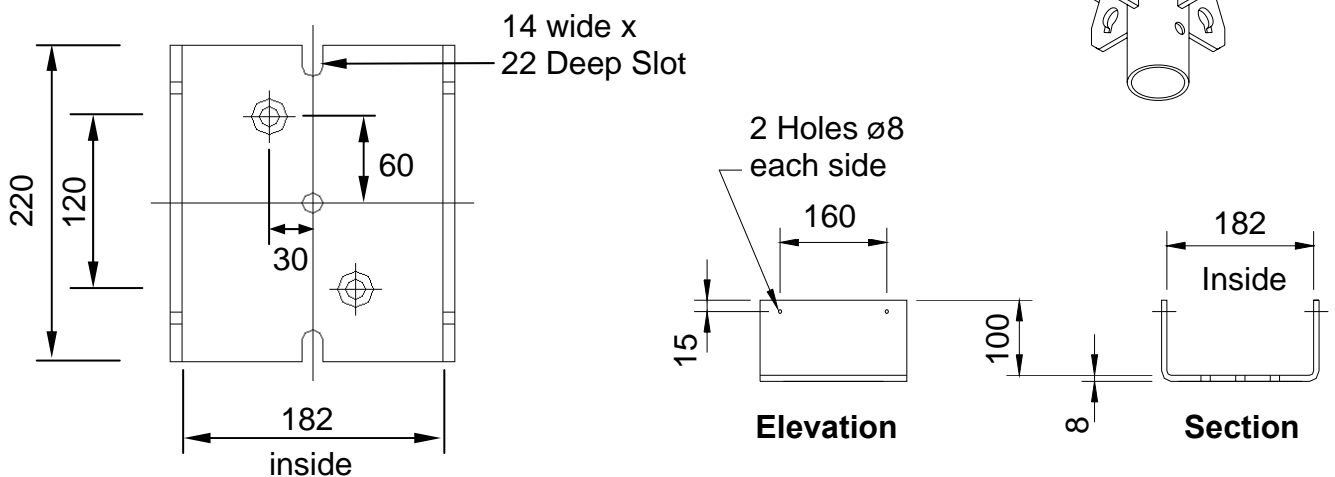
Rapidshor Tilt Head 182mm Wide - RSX10007 (13.1kg)

Normally used with a Rapidshor Jack, but can be used with a Base Sleeve 216mm to make a fixed tilt head if required. Rotates up to 30 deg using the tilt axis and 2.5 deg in any other direction. Ensure that the tilt axis is placed perpendicular to the line of the greatest slope.



Rapidshor U-Plate 8 thk x 182mm Wide - RSX10008 (5.31kg)

Bolts to Rapidshor Base 165mm to make a Rapidshor Brace
U-Head 182mm Wide - (RSX10003)



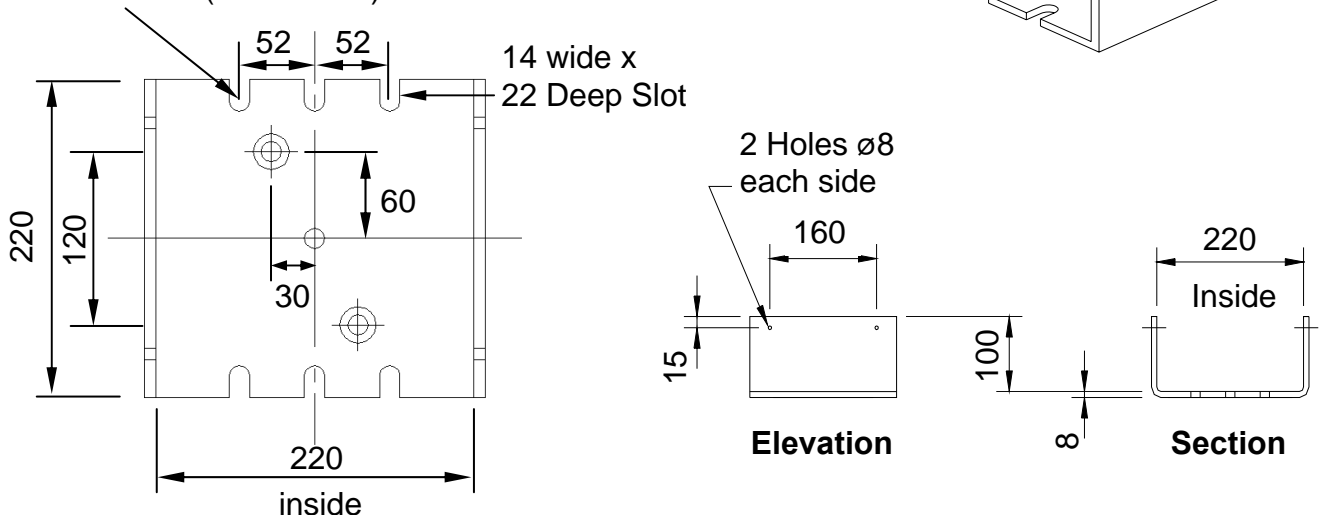
Rapidshor U-Plate 8 thk x 220mm Wide - RSX10001 (5.73kg)

Bolts to Rapidshor bases to make a wide head where lapped or double Albeam are required. Refer to sheet 31 for guidance on lapped primary beams.

Connect to slots using:

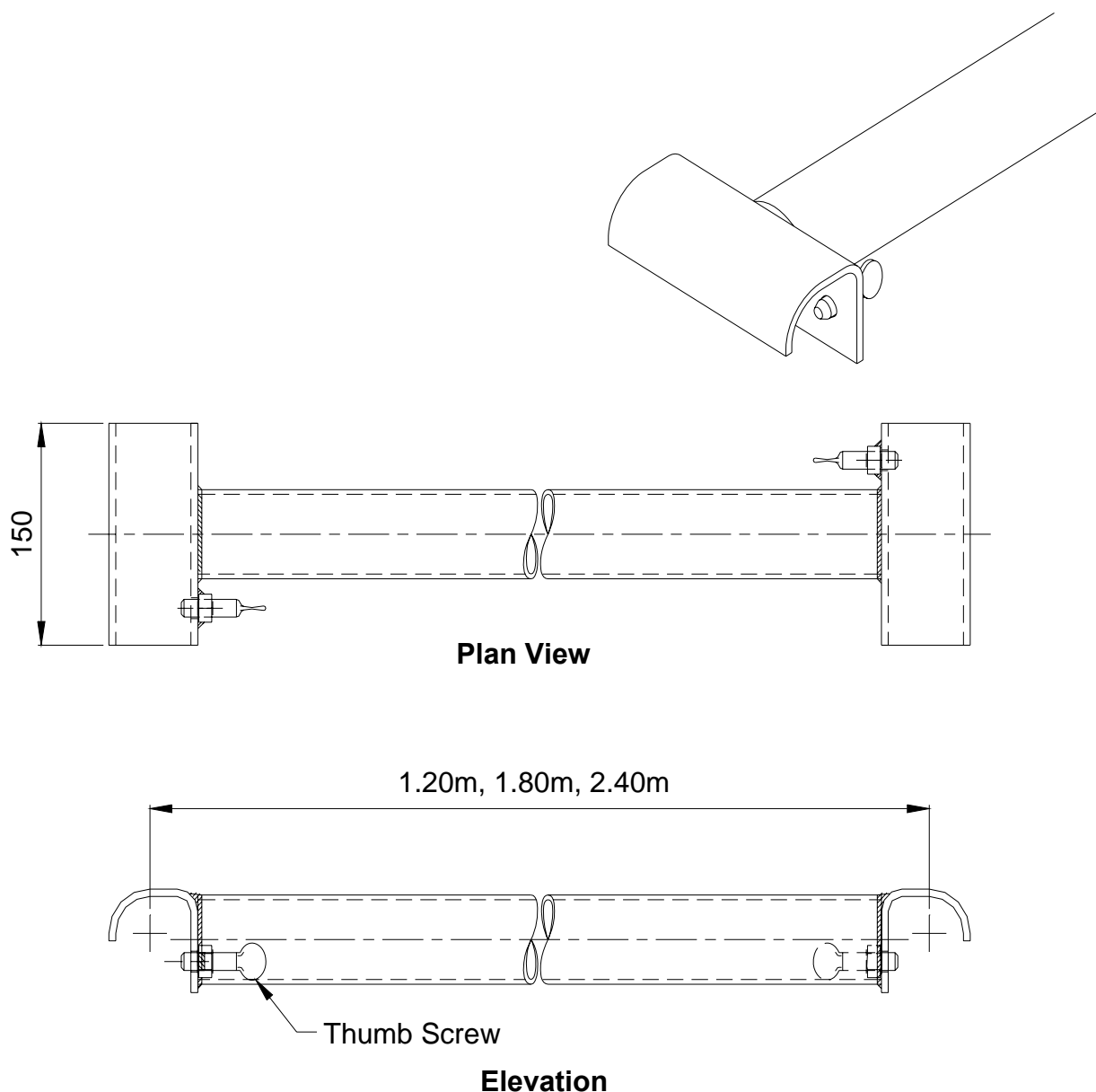
M12 Unifix bolts - (AFX20022)

& M12 Hex Nuts - (BNU12001)



Board Bearers

Used to provide intermediate support to scaffold boards in access applications. AWL 1.5kN/m² when used with standard RMDK scaffold boards supported at 1200mm maximum centres



Code	Description	Weight
ASX62400	Alshor Plus Board Bearer 2400mm	10.0 kg
ASX61800	Alshor Plus Board Bearer 1800mm	7.86 kg
ASX61200	Alshor Plus Board Bearer 1200mm	5.72 kg
SFX20395	Scaffold Board 3.95m	17.7 kg

Stair Access

Used to provide access to one or more boarded levels within a Rapidshor structure or as an independent stair tower for other construction projects. AWL 2.5kN/m².

Stair units are designed to be assembled within a 1500x2400 Rapidshor tower.

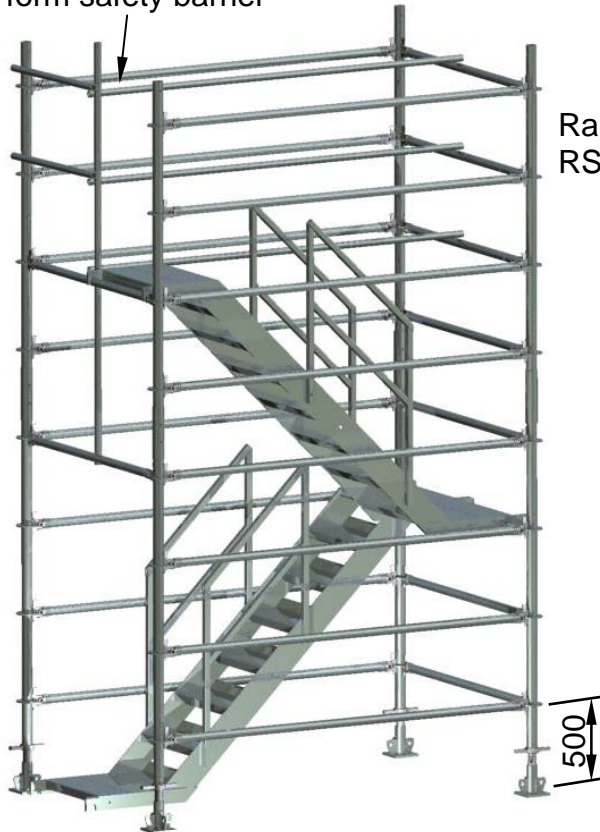
These stairs are not suitable for use by the General Public.

The scaffolding supporting the access stairs shall be erected using the same procedure as that described in the assembly sequence.

It is important that:-

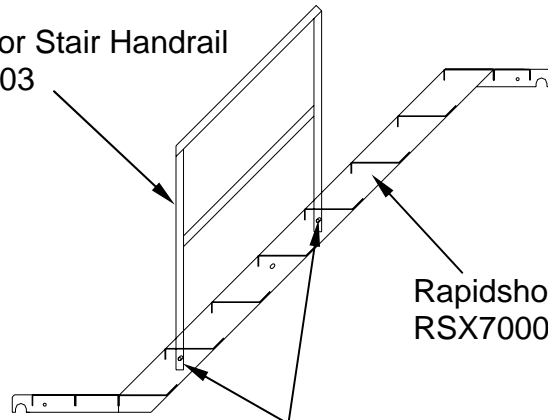
1. The foundations are of a suitable nature to satisfactory support the loads implied by the scaffolding without settlement.
2. The scaffolding tower shall be erected square, plumb / level and braced on all four faces prior to installing any stair units.
3. The scaffolding tower shall be tied into a suitable supporting structure at appropriate positions at all times.

Tube & fittings used to form safety barrier



Stair units fitted within a 1500x2400 Rapidshor tower (bracing omitted for clarity)

Rapidshor Stair Handrail
RSX70003



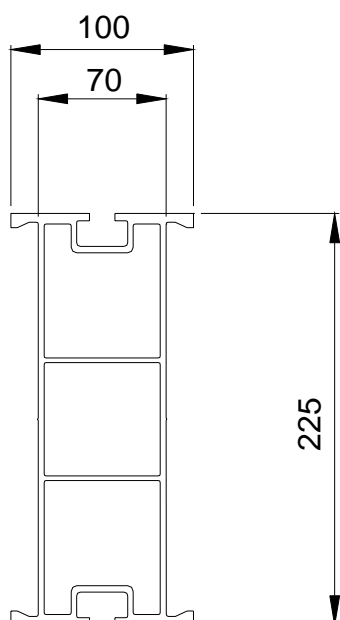
Rapidshor Stair Unit
RSX70006

Connect Stair Handrail to Stair Unit using:-
2No M12x75 bolts BNX12007
2No M12 Hexnuts BNU12001 &
4No M12 Round Washers BNU12002

Code	Description	Weight
RSX70003	Rapidshor Stair Handrail	11.0 kg
RSX70006	Rapidshor Stair Unit	70.00 kg
BNX12007	M12x75 Bolt gr8.8 BZP	0.08 kg
BNU12001	M12 Nut g8.8 BZP	0.01 kg
BNU12002	M12 Round Washer	0.01kg

Albeam

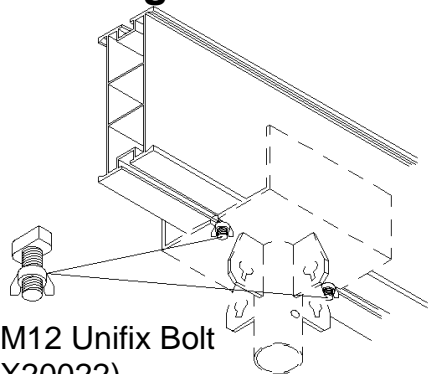
Used as a primary beam in soffit falsework applications.



Code	Description	Weight
ABX11800	Albeam 1800mm	15.1 kg
ABX12400	Albeam 2400mm	20.1 kg
ABX12700	Albeam 2700mm	22.7 kg
ABX13000	Albeam 3000mm	25.2 kg
ABX13600	Albeam 3600mm	30.2 kg
ABX14800	Albeam 4800mm	40.3 kg
ABX15400	Albeam 5400mm	45.3 kg
ABX16000	Albeam 6000mm	50.3 kg
ABX17200	Albeam 7200mm	60.4 kg
ABX18400	Albeam 8400mm	70.5 kg
ABX19600	Albeam 9600mm	80.5 kg

Non standard lengths are available on a sale only basis.

Head Connection Single Albeam



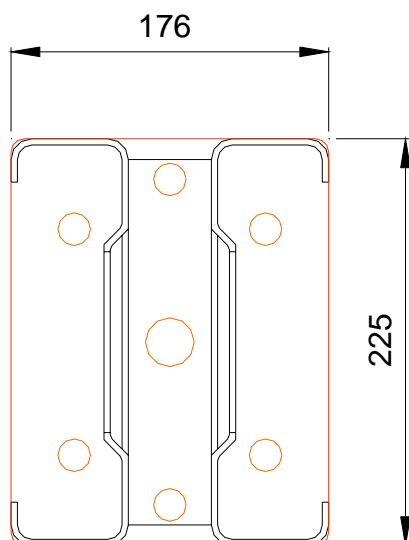
2 x M12 Unifix Bolt
(AFX20022)
2 x M12 Wing Nut
(BNU12004)

Al-Beam Properties

Gross Area	33.06cm ²
Second Moment of area I xx	2131cm ⁴
Flexural Rigidity EI	1468kNm ²
Shear Rigidity GA xx	35110kN
Maximum Bending Moment xx	25kNm
Self Weight	8.4kg/m
220mm - Intermediate Bearing	120kN
200mm - Intermediate Bearing	115kN
170mm - Intermediate Bearing	100kN
110mm - End Bearing	38.5kN

Superslim Soldier

Used as an alternative primary beam to Albeam in soffit falsework applications.



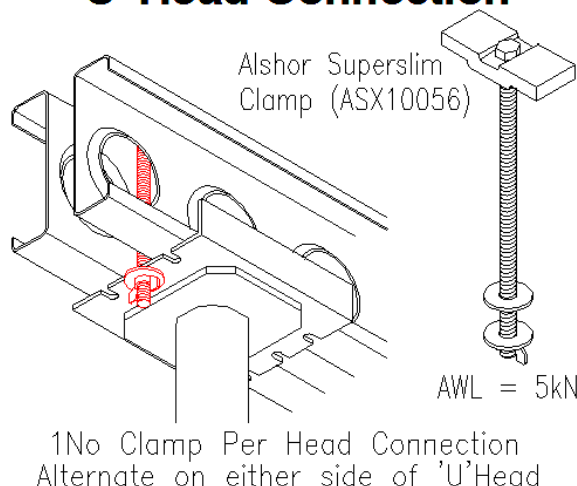
*See Superslim Soldier Technical Data Sheets for the envelope of allowable working loads in combined bending and bearing.

S/Slim Properties

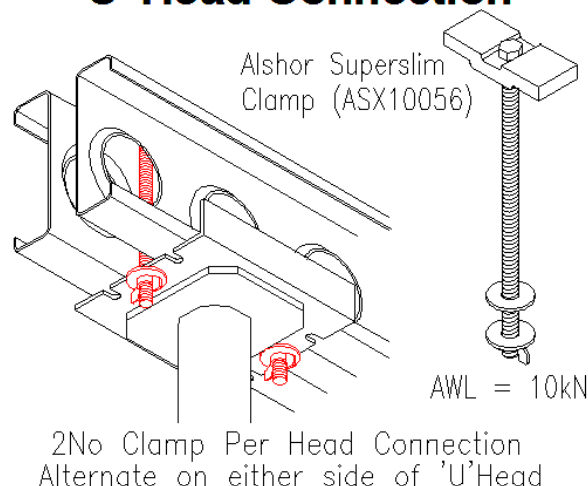
Gross Area	26.06cm ²
Second Moment of area I _{xx}	1916cm ⁴
Flexural Rigidity EI	4020kNm ²
Shear Rigidity GA _{xx}	17350kN
Maximum Bending Moment _{xx}	40kNm*
Maximum Reaction	80kN*
Self Weight	19.88kg/m

Code	Description	Weight
SSX13600	Superslim Soldier 3600mm	71.1 kg
SSX12700	Superslim Soldier 2700mm	56.6 kg
SSX11800	Superslim Soldier 1800mm	38.5 kg
SSX10900	Superslim Soldier 900mm	20.8 kg
SSX10720	Superslim Soldier 720mm	17.8 kg
SSX10540	Superslim Soldier 540mm	12.5 kg
SSX10360	Superslim Soldier 360mm	8.5 kg
SSU10035	Superslim 360mm OE	8.2 kg
SSX10090	Superslim Soldier 90mm	6.5 kg
SSX10040	Superslim End Plate 10mm	2.8 kg

S/Slim Primary Beam to 'U' Head Connection

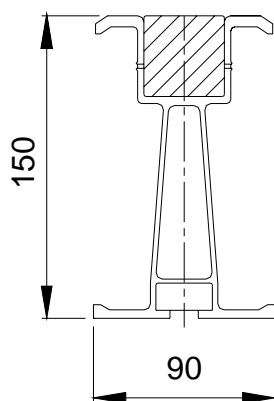


S/Slim Primary Beam to 'U' Head Connection



Alform Beam

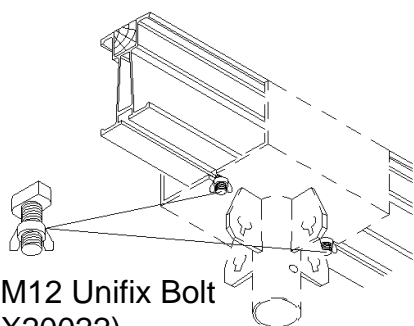
Used, as a primary beam for shorter spans and where the Rapidshor leg load does not exceed 55kN. Used as a secondary beam for longer spans and/or heavier loads.



Alform Beam Properties

Gross Area	17.6cm ²
Second Moment of area I _{xx}	558cm ⁴
Flexural Rigidity EI	384kNm ²
Shear Rigidity GA _{xx}	18489kN
Maximum Bending Moment _{xx}	10kNm
Max Reaction (Intermediate) 75mm bearing	55kN
Max Reaction (End) 44mm bearing	40kN
Self Weight (with timber insert)	5.66kg/m

Head Connection Single Alform

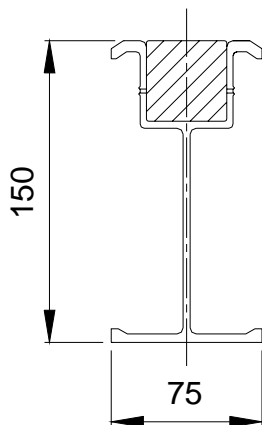


2 x M12 Unifix Bolt
(AFX20022)
2 x M12 Wing Nut
(BNU12004)

Code	Description	Weight
AFX11200	Alform Beam 1200mm	6.8 kg
AFX11500	Alform Beam 1500mm	8.5 kg
AFX11800	Alform Beam 1800mm	10.2 kg
AFX12100	Alform Beam 2100mm	11.9 kg
AFX12400	Alform Beam 2400mm	14.1 kg
AFX12700	Alform Beam 2700mm	15.3 kg
AFX13600	Alform Beam 3600mm	20.9 kg
AFX14200	Alform Beam 4200mm	24.4 kg
AFX14800	Alform Beam 4800mm	27.8 kg
AFX15400	Alform Beam 5400mm	30.6 kg
AFX16000	Alform Beam 6000mm	34.9 kg
AFX16600	Alform Beam 6600mm	37.0 kg
AFX17200	Alform Beam 7200mm	41.9 kg
AFX19600	Alform Beam 9600mm	54.3 kg

Alsec Beam

Used as a backing member to the plywood in the majority of soffit applications.



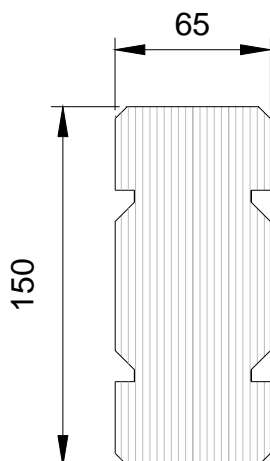
Alsec Beam Properties

Gross Area	12.47cm ²
Second Moment of area I _{xx}	389cm ⁴
Flexural Rigidity EI	268kNm ²
Shear Rigidity GA _{xx}	12000kN
Maximum Bending Moment _{xx}	7.0kNm
Max Reaction (Intermediate) 75mm bearing	33kN
Max Reaction (End) 44mm bearing	15kN
Self Weight (with timber insert)	4.06kg/m

Code	Description	Weight
ALX11200	Alsec Beam 1200mm	4.1 kg
ALX11500	Alsec Beam 1500mm	5.1 kg
ALX11800	Alsec Beam 1800mm	6.1 kg
ALX12100	Alsec Beam 2100mm	7.1 kg
ALX12400	Alsec Beam 2400mm	8.1 kg
ALX13600	Alsec Beam 3600mm	12.2 kg
ALX14200	Alsec Beam 4200mm	14.3 kg
ALX14800	Alsec Beam 4800mm	16.3 kg
ALX15400	Alsec Beam 5400mm	18.3 kg
ALX16000	Alsec Beam 6000mm	20.4 kg
ALX17200	Alsec Beam 7200mm	24.4 kg

GTX 150 Beam

An economical laminated timber beam used as a backing member



GTX150 Beam Properties

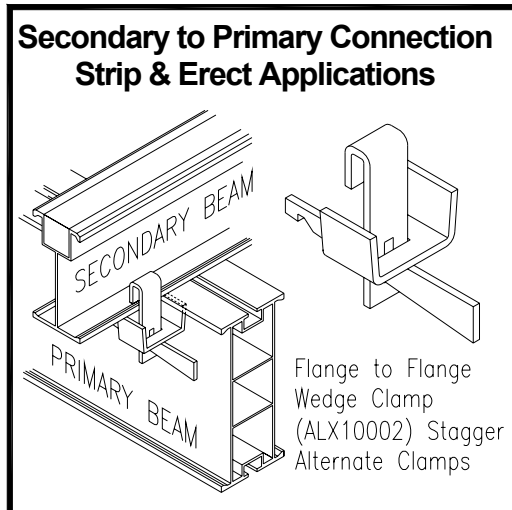
Gross Area	94 cm ²
Flexural Rigidity EI	186kNm ²
Maximum Bending Moment xx	6.14kNm
Max Shear Load	25.8kN
Self Weight	5.50kg/m

Code	Description	Weight
GTX02400	GTX 150 Beam 2400mm	13.2 kg
GTX03000	GTX 150 Beam 3000mm	16.5 kg
GTX03600	GTX 150 Beam 3600mm	19.8 kg
GTX04200	GTX 150 Beam 4200mm	23.1 kg
GTX04800	GTX 150 Beam 4800mm	26.4 kg
GTX05400	GTX 150 Beam 5400mm	29.7 kg
GTX06000	GTX 150 Beam 6000mm*	33.0 kg

*Actual length 5950mm

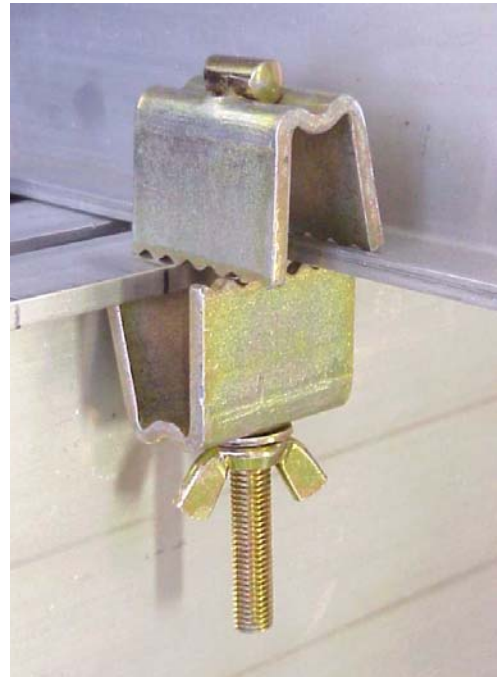
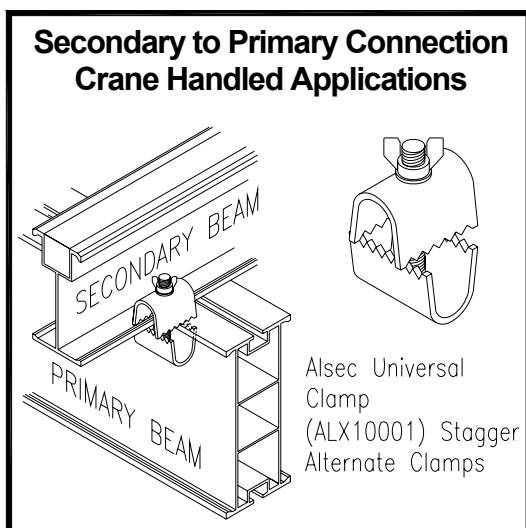
Flange to Flange Wedge Clamp (ALX10002) weight 0.50kg

A fast lightweight and secure clamp used for connection of backing members to primary beams in strip and erect applications for all falsework systems. Connects Albeam, Alform, Alsec and Superslim in any combination.



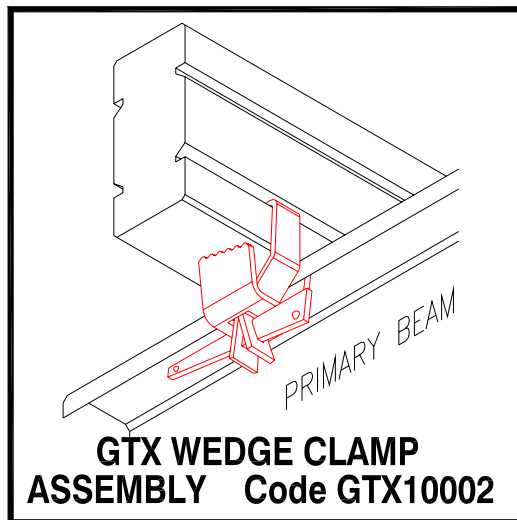
Universal Clamp (ALX10001) weight 0.67kg

A secure serrated clamp used with all falsework systems in crane handled applications. Connects Albeam, Alform, Alsec, Superslim Soldiers, GTX150 and T200 composite timber beams in any combination. Tighten the unit by tapping the wings of the nut with a hammer.



GTX Wedge Clamp Assembly (GTX10002) weight 1.09kg

A fast and secure clamp used to connect GTX150 or T200 beams to Alsec Alform Albeam or Superslim Soldiers.

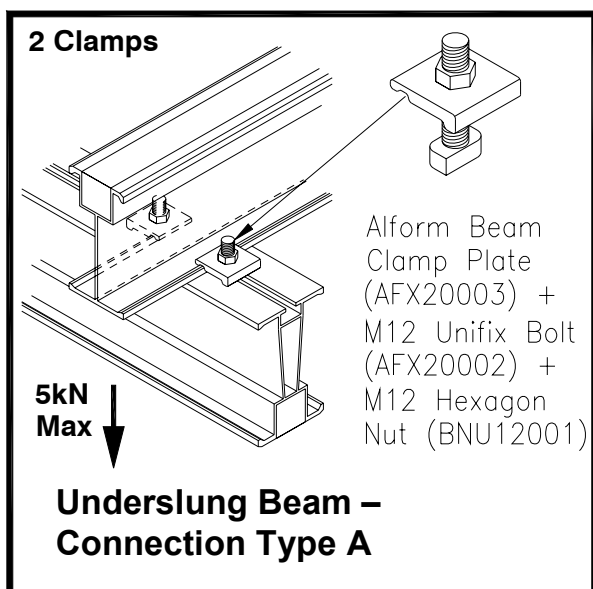
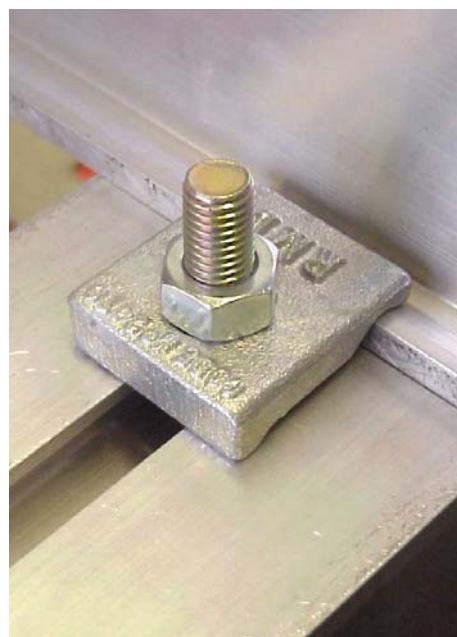


Underslung Clamp

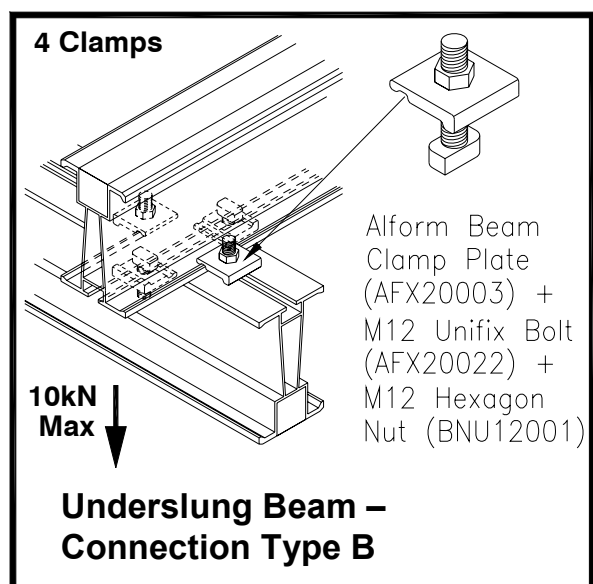
A secure clamp supplied in three parts used to connect underslung aluminium beams where a known load capacity for the connection is required. Note that one of the connected beams must be either an Alform or an Albeam. When 4 clamps are used both beams must be an Alform or an Albeam.

AWL with 2 clamps 5kN

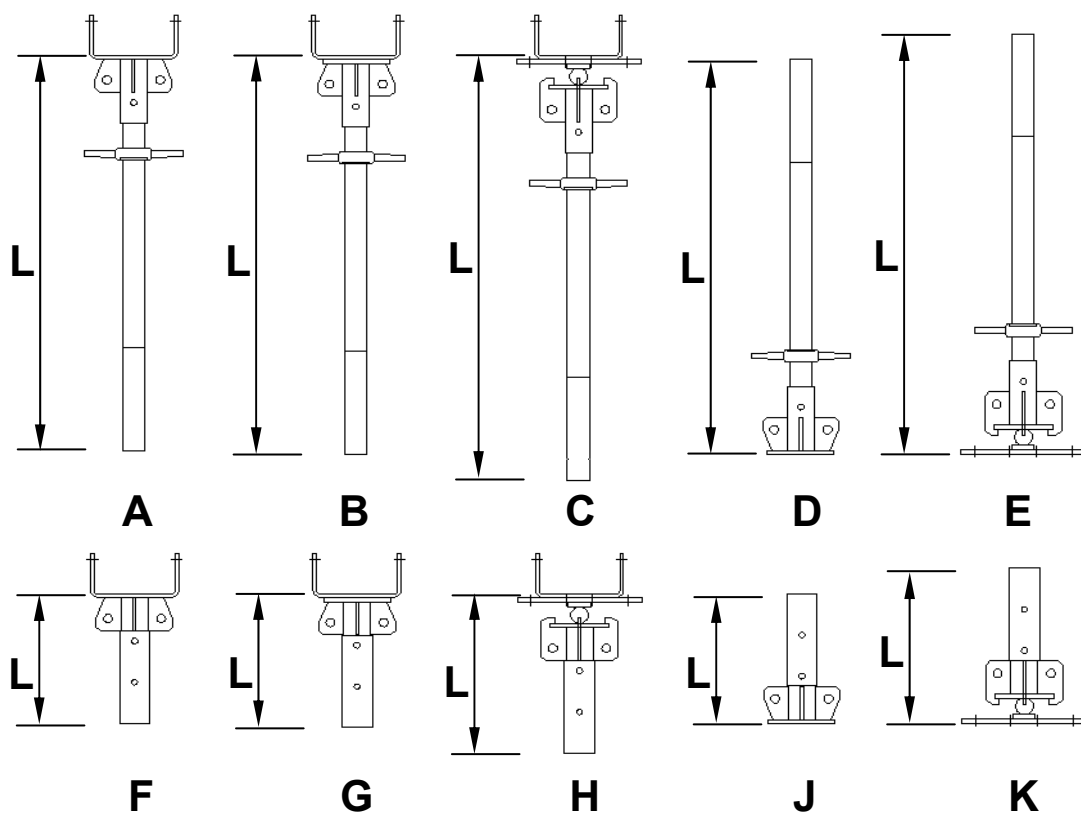
AWL with 4 clamps 10kN



Code	Description	Weight
AFX20003	Alform Clamp Plate	0.099kg
AFX20022	M12 Unifix Bolt	0.047kg
BNU12001	M12 Hex Nut Plated	0.01kg



Base and Head Dimensions



Ref	Codes	Description	O/A Length 'L'	Max Load	Open Dim	Closed Dim
A	RSX10003 & RSX10004	Rapidshor Brace U-Head 8 thk x 182mm Wide & Rapidshor Jack 25-540mm	958 mm	80kN	703mm	188 mm
B	RSX10003 & RSX10004	Rapidshor Brace U-Head 8 thk x 182mm Wide & Rapidshor Jack 25-540mm	968 mm	80kN	713 mm	198 mm
C	RSX10007 & RSX10004	Rapidshor Tilt Head 182mm Wide & Rapidshor Jack 25-540mm	1030 mm	80kN	775 mm	260 mm
D	RSX10002 & RSX10004	Rapidshor Base 165mm & Rapidshor Jack 25-540mm	960 mm	80kN	705 mm	190 mm
E	RSX10006 & RSX10004	Rapidshor Tilt Base & Rapidshor Jack 25-540mm	1022 mm	80kN	767 mm	252 mm
F	RSX10003 & RSX10010	Rapidshor Brace U-Head 8 thk x 182mm Wide & Rapidshor Base Sleeve 216mm	313 mm	80kN	163 mm	163 mm
G	RSX10003 & RSX10010	Rapidshor Brace U-Head 8 thk x 182mm Wide & Rapidshor Base Sleeve 216mm	323 mm	80kN	173 mm	173 mm
H	RSX10007 & RSX10010	Rapidshor Tilt Head 182mm Wide & Rapidshor Base Sleeve 216mm	384 mm	80kN	235 mm	235 mm
J	RSX10002 & RSX10010	Rapidshor Base 165mm & Rapidshor Base Sleeve 216mm	315 mm	80kN	165 mm	165 mm
K	RSX10006 & RSX10010	Rapidshor Tilt Base & Rapidshor Base Sleeve 216mm	376 mm	80kN	227 mm	227 mm

Stated dimensions are 'fully open' & 'fully closed'. They do not include for any additional striking.

Standards

The standards are manufactured from high grade steel tube 60.3 O.D. x 3.2mm thick and galvanised.

The lug clusters are arranged to allow the standard to be fitted any way without reduction in capacity.

When the shoring is more than one standard in height the joint in the standards can be placed anywhere in the height providing there is no more than one joint between adjacent ledgers.

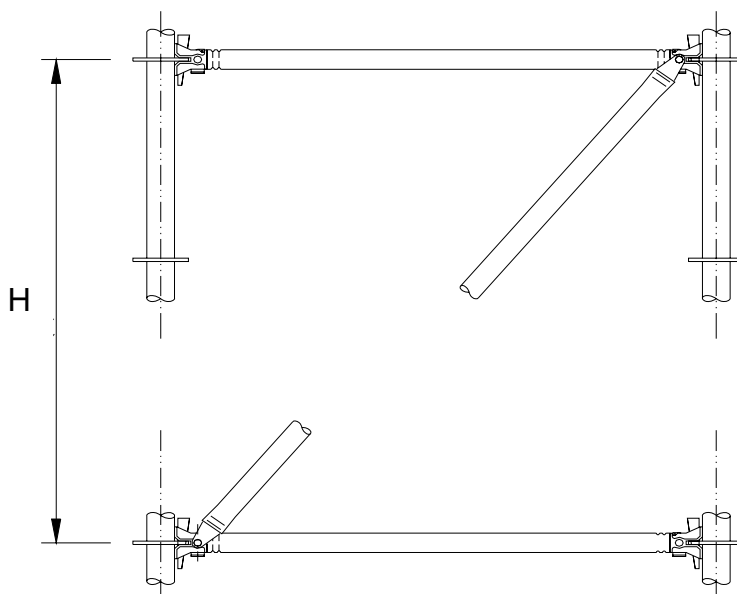
Only one standard needs to be connected to the spigot in any joint. However if the shoring is to be crane handled both standards shall be connected to each spigot.

Maximum Allowable Load

For H = 1500mm AWL = 80.0kN

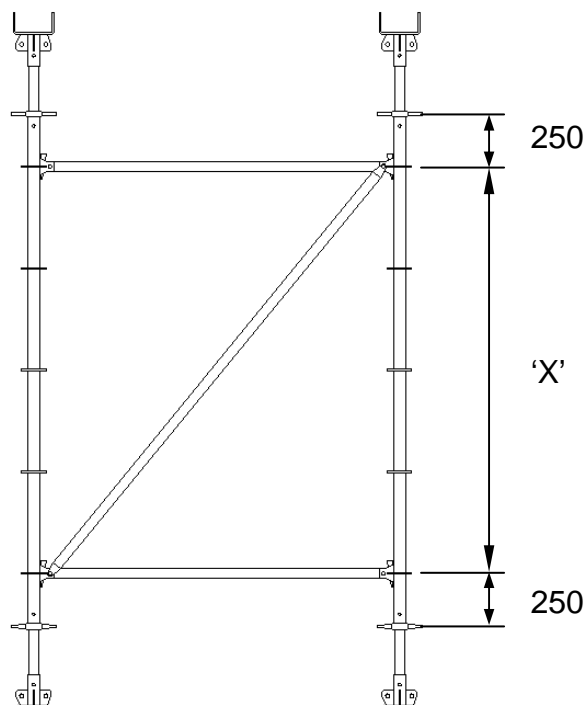
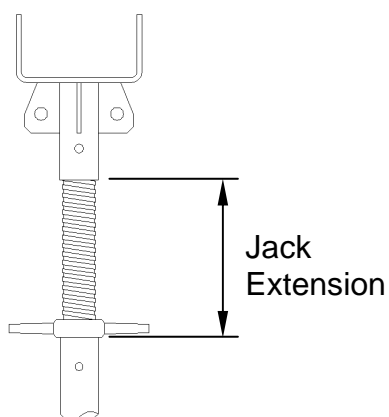
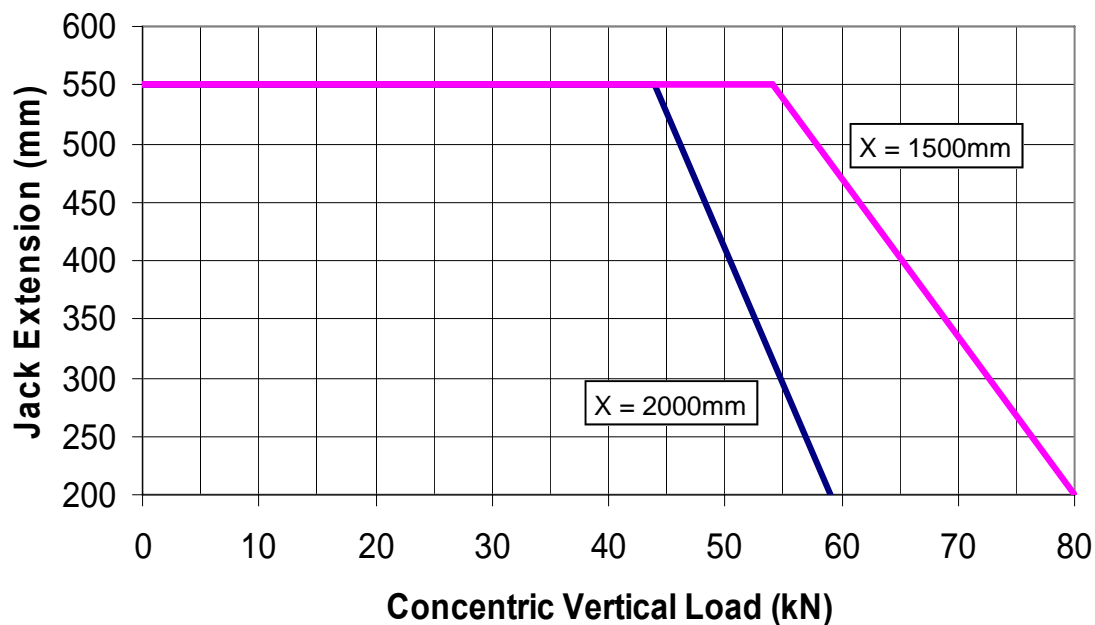
For H = 2000mm AWL = 60.0kN

Acting in tension
(for crane handling only) = 10.0kN



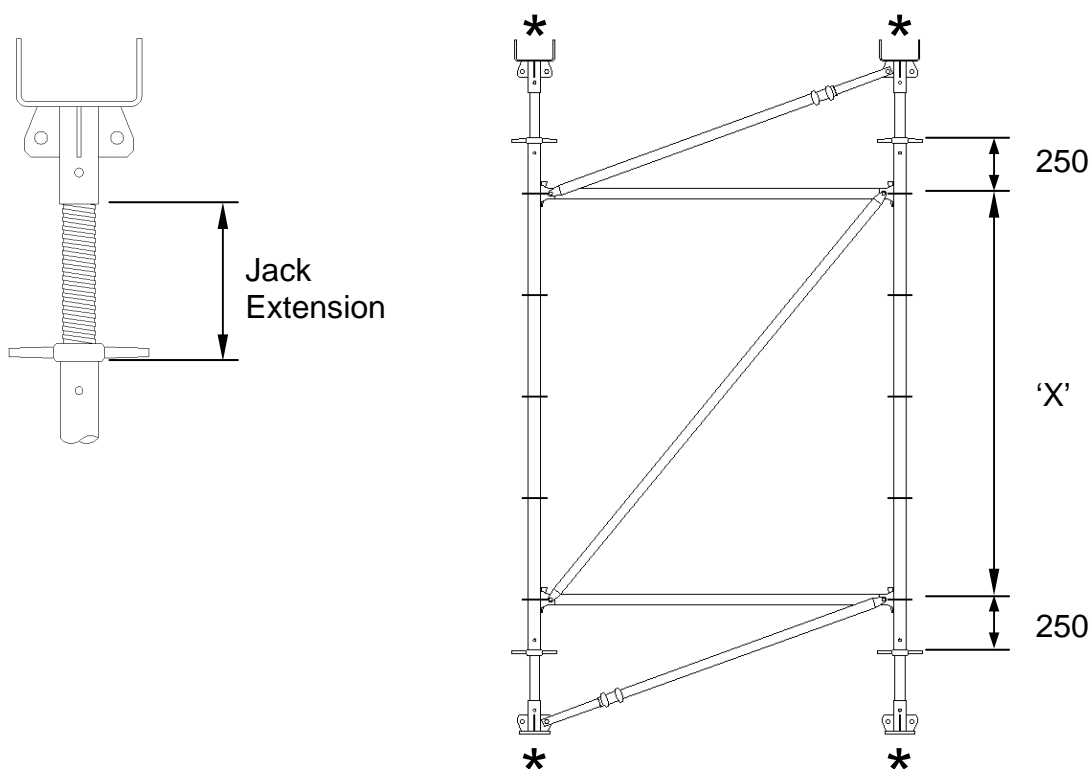
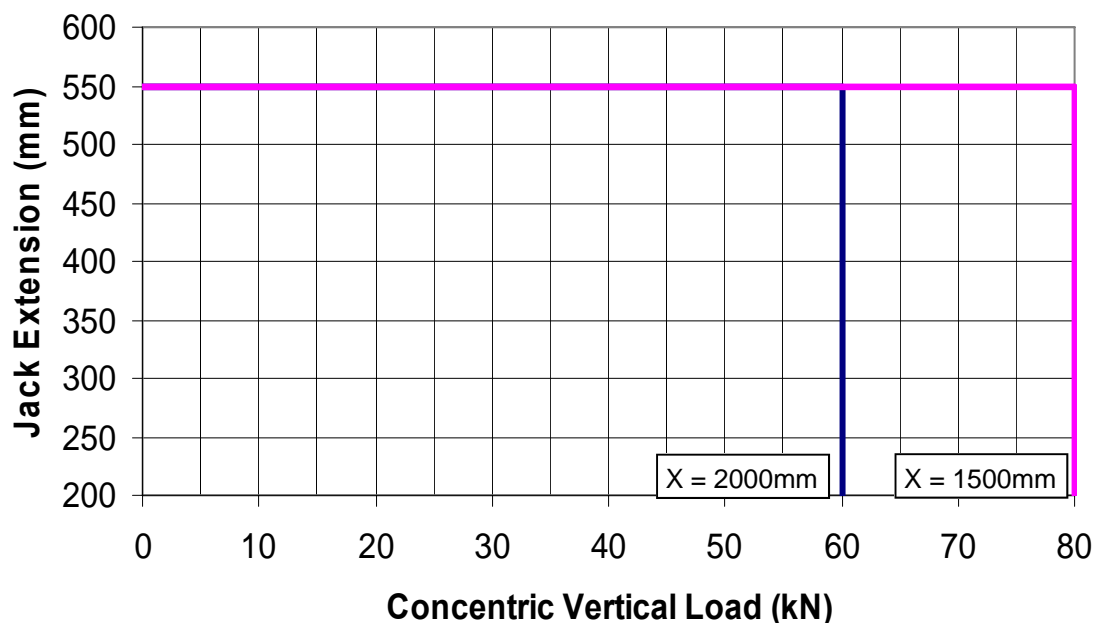
Freestanding Condition

SWL in Jacks



Freestanding Condition With Braced Jacks

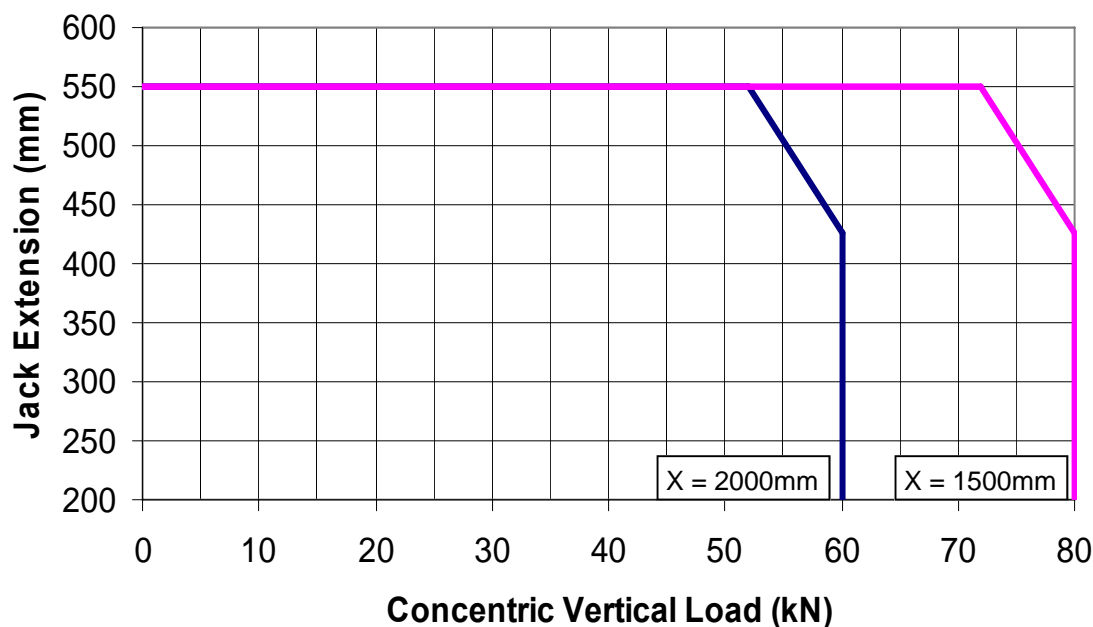
SWL in Jacks



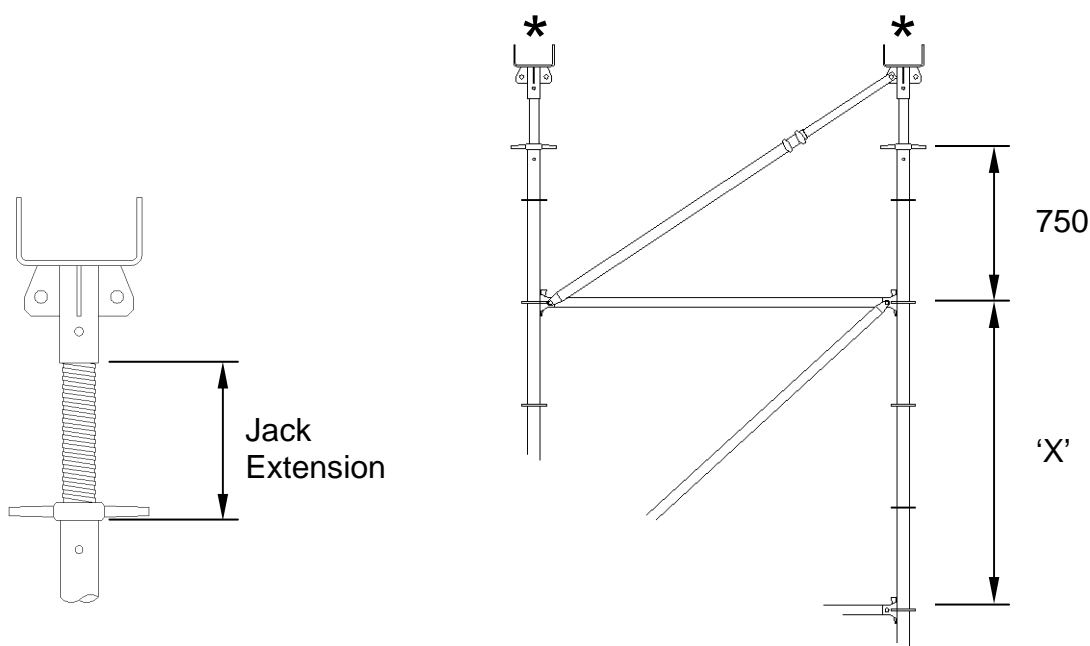
* Jacks to be adequately connected for continuity of lateral support

Freestanding Condition With Braced Jacks

SWL in Jacks



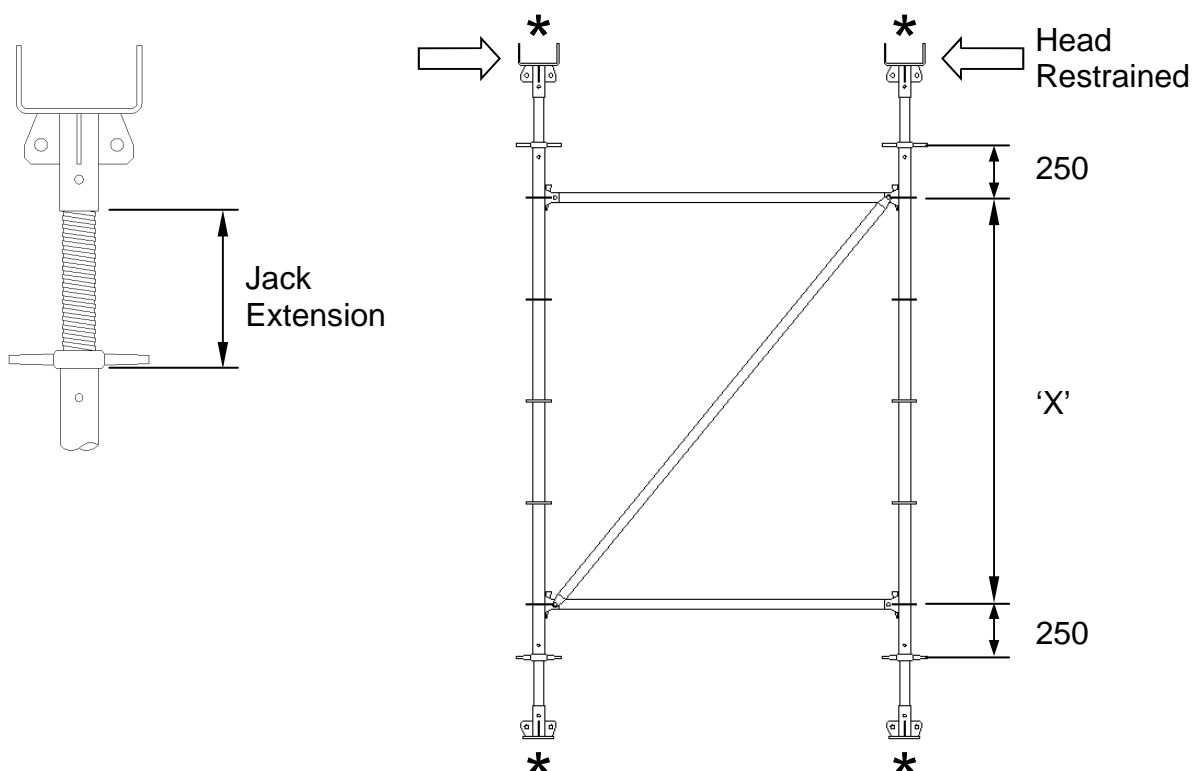
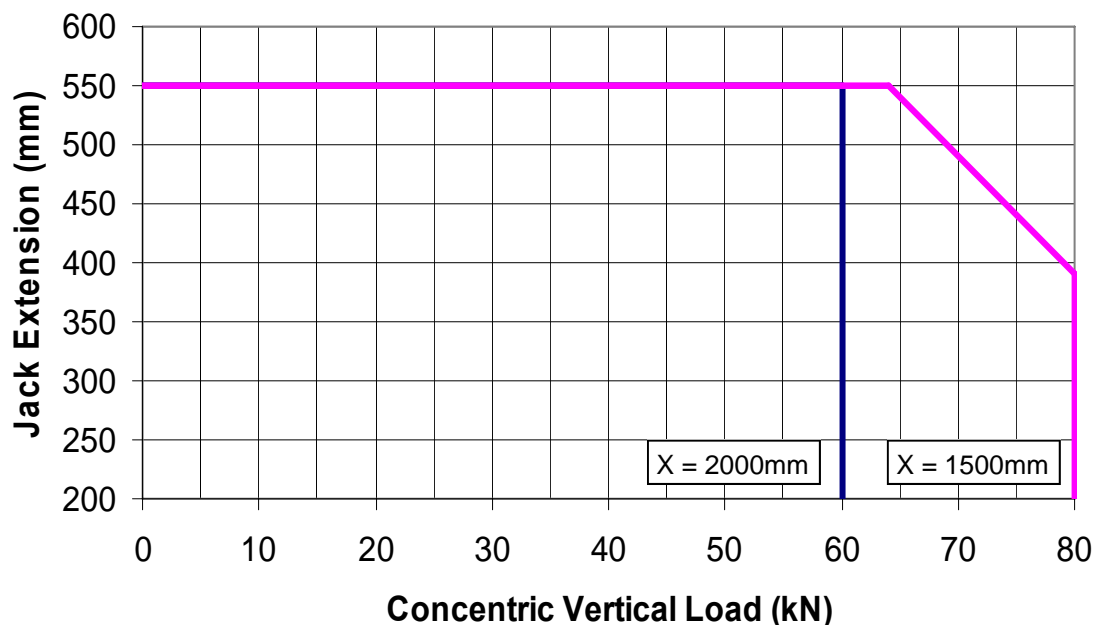
Note:
This graph applies to head condition only.
Not recommended for base condition.



* Jacks to be adequately connected for continuity of lateral support

Top Restrained (Laterally fixed at the head)

SWL in Jacks



* Jacks to be adequately connected for continuity of lateral support

Reducing Soffit Beam Continuity by Using Spring Supports

For tall falsework with primary beams spanning over several bays, the adverse effects of beam continuity on leg load can be reduced by modelling the beam supports as springs with the stiffness appropriate to the falsework height from the table.

Supports

Support No.

Position : mm

Stiffness : kN/mm

☐ Knife Edge
☒ Spring

New Apply Delete Cancel OK

Height (metres)	Axial Stiffness (kN/mm)
1	120.5
2	60.3
3	40.2
4	30.1
5	24.1
6	20.1
7	17.2
8	15.1
9	13.4
10	12.1
11	11.0
12	10.0
13	9.3
14	8.6
15	8.0
16	7.5
17	7.1
18	6.7
19	6.3
20	6.0
21	5.7
22	5.5
23	5.2
24	5.0
25	4.8
26	4.6
27	4.5
28	4.3
29	4.2
30	4.0

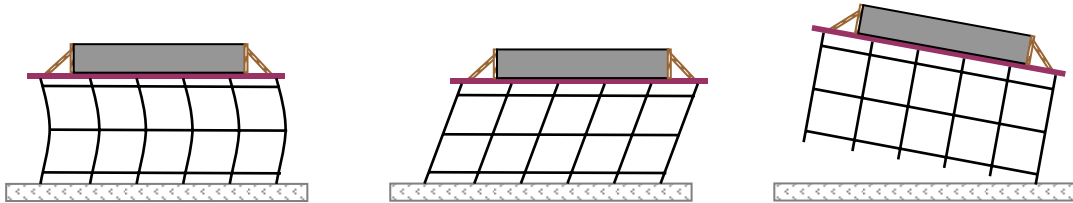
Rapidshor Leg Make-ups

Propping Height Min* - Max	STANDARDS				JACK	BASE	HEAD	JOINT SLEEVE	BASE SLEEVE	SLEEVE CLIP
	RSX42500 OE2500	RSX42000 OE2000	RSX41500 OE1500	RSX41000 OE1000	RSX10004 25-540	RSX10002 165	RSX10003 173	RSX10005 300	RSX10010 214	RSX10009 -
1385-1875	-	-	-	1	1	1	1	-	1	1
1885-2375	-	-	1	-	1	1	1	-	1	1
1950-2415	-	-	-	1	2	1	1	-	-	-
1950-2915	-	-	1	-	2	1	1	-	-	-
2410-3415	-	1	-	-	2	1	1	-	-	-
2910-3915	1	-	-	-	2	1	1	-	-	-
3410-4415	-	1	-	1	2	1	1	1	-	1
3910-4915	-	1	1	-	2	1	1	1	-	1
4410-5415	1	-	1	-	2	1	1	1	-	1
4910-5915	1	1	-	-	2	1	1	1	-	1
5410-6415	2	-	-	-	2	1	1	1	-	1
5910-6915	1	1	-	1	2	1	1	2	-	2
6410-7415	1	1	1	-	2	1	1	2	-	2
6910-7915	2	-	1	-	2	1	1	2	-	2
7410-8415	2	1	-	-	2	1	1	2	-	2
7910-8915	3	-	-	-	2	1	1	2	-	2
8410-9415	2	1	-	1	2	1	1	3	-	3
8910-9915	2	1	1	-	2	1	1	3	-	3

* This allows for 20mm for striking one jack, all dimensions are in mm.

Bracing and Stability

Rapidshor is designed as a fully braced system with up to three bracing and stability checks required as follows:



1) Nodal stability

2) Lateral stability

3) Overturning

For *freestanding* falsework all three checks are required. For *fixed at the head* (top restrained) falsework only check 1 is carried out.

1. Nodal Stability

Nodal stability is provided to restrict the effective length of the standards to prevent them from buckling. Internal ledgers and braces or external restraints can be used.

The force required to restrain a single node point is $2\frac{1}{2}\%$ of the axial load in the standard acting at right angles to it. Ledgers connect to the standards, collect these loads from them and carry them to the brace positions.

The bracing in each plane and lift of the falsework is designed to resist the sum of the node restraint forces for all standards in the plane. This equates to a design transverse shear force for each lift of $2\frac{1}{2}\%$ of the sum of the vertical loads in the plane.

The restraint force is a notional load, it is not cumulative in the structure and if internal ledgers and bracing are used no horizontal loads exit the structure.

If only nodal stability is being considered then the Rapidshor can be braced in towers without further component checks being necessary. The effect that braces have on the vertical load in the standards does not need to be considered, see figure 1. Care should be taken to ensure that every node is braced, see figure 2.

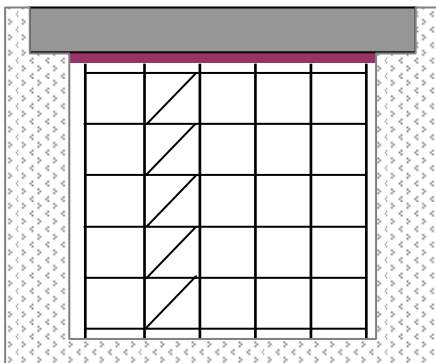


Figure 1

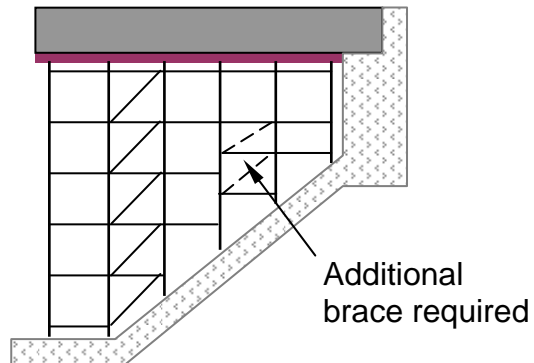


Figure 2

2. Lateral Stability

If the Rapidshor structure is freestanding in the direction being considered then the bracing shall be designed to accommodate the greater of the following:

- $2\frac{1}{2}\%$ of the vertical load applied horizontally at the top of the structure.
- 1% of the vertical load applied horizontally at the top of the structure plus the sum of any other applied horizontal loads such as those due to wind, standards out of plumb by design, concrete pressure due to stop end forms etc. applied at their respective levels.

These are actual loads and the effect that the braces have on the vertical load in the standards must be allowed for. The Rapidshor is designed as a tiered structure with the horizontal forces in each lift being resolved into the braces in that lift and the horizontal and vertical load components transferred into the ledgers and standards being checked. There is no need to carry out a frame analysis on the whole structure.

In tall structures or where narrow bays are braced the additional vertical load due to the bracing can be considerable. The effect on standard loads will be reduced if braces extend diagonally over multiple bays, see figure 3.

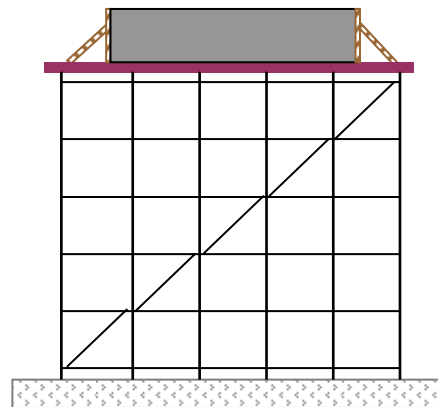


Figure 3

3. Overturning

If the Rapidshor structure is freestanding in the direction being considered it must be checked for overturning as well as lateral stability. The restoring moment caused by the self weight of the structure and any other dead loads that are in position must be greater than or equal to 1.2 times the overturning moment caused by the larger of the two conditions given for lateral stability above. The base width of the structure for the restoring moment should be taken as the widest part that is continually braced, see figure 4.

Overturning stability shall be checked for all stages of construction. Wind loading applied to freshly erected falsework to which there is not yet any applied vertical load is often the worst case.

If the section is braced in towers so that the structure does not act as a single block then overturning will be resisted purely by the individual towers and the additional compression and uplift in the legs will be considerable.

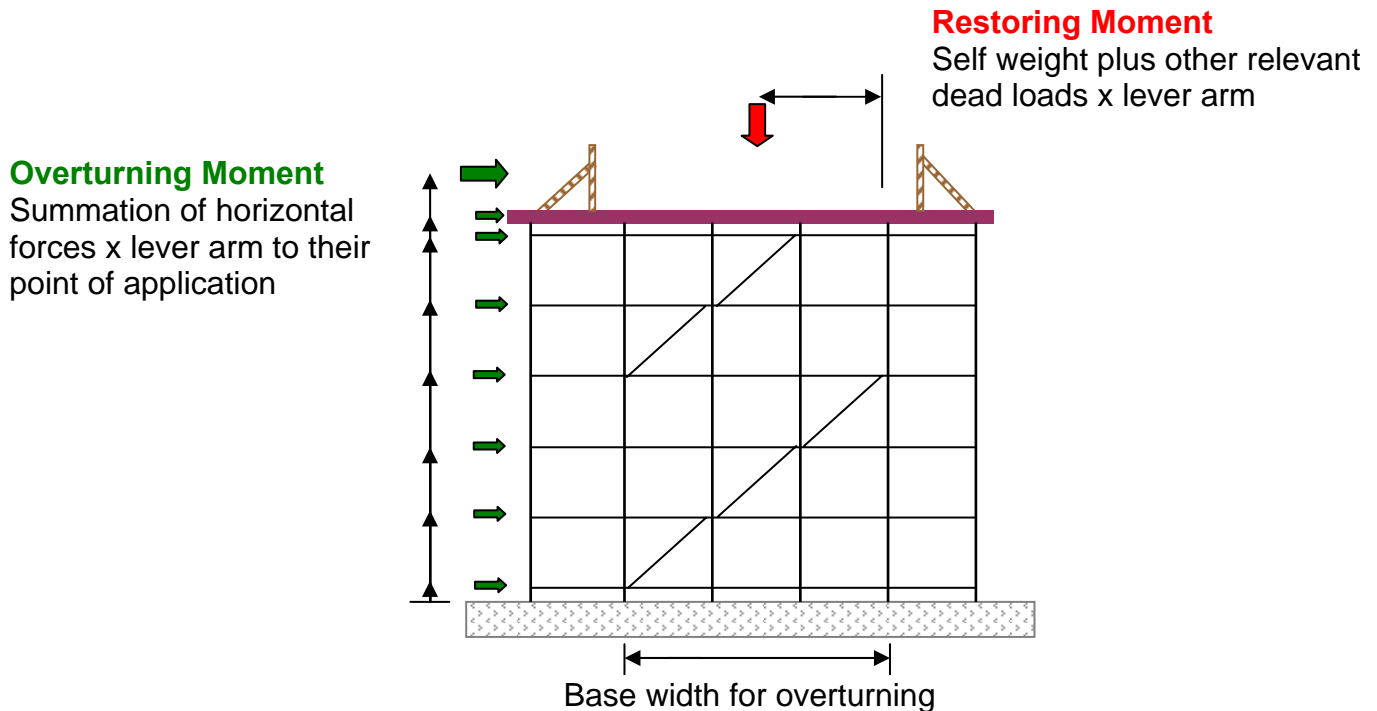


Figure 4

Transfer of Horizontal Loads at Head and Base

In the majority of cases horizontal loads will be transferred between the base/foundation and heads/primary beam by friction. If this is the case care should be taken that where jack braces are used they terminate at a standard carrying enough load to mobilise sufficient friction to transfer the load. If this is not the case the head and/or base jacks should be connected to their neighbours with tube and fittings or to the primary beam/foundation with mechanical fixings designed to transfer the whole load.

Allowable Working Loads in Braces

The allowable working load in Rapidshor braces is shown in the table on sheet 12. For fixed length braces the allowable working load in tension is greater than that in compression. If a reversed pair of braces is used in a single lift the full capacity for one brace in compression plus one in tension may be used as one brace will always act in tension regardless of the direction of load. If a single brace is used the compression value must be used.

Skewing the Falsework Grid

Rapidshor may be detailed with the grid skewed to any angle up to 35 degrees. This feature is useful for falsework to skew bridge decks. Adjacent bays may be skewed to different angles if necessary although this may prove awkward for scaffolders to lay out on site.

For skew angles up to 22.5 degrees ledgers connect to the standard lug clusters in the normal way with wedges in taper slots at 90 degrees to each other (see Fig.1). For angles between 22.5 and 35 degrees ledger wedges are placed in taper slots adjacent to each other (45 degrees apart—see Fig.2). All ledgers and braces should be placed at a node before tightening the ledger wedges.

Effect on Loads to Standards

The load in the standards for a particular grid and slab thickness will be reduced in comparison to a grid with no skew by the cosine of the skew angle.

i.e. The load area carried by a standard in a 1.8m square grid (ignoring continuity) is:

$$1.8\text{m} \times 1.8\text{m} = 3.24\text{m}^2$$

If the grid is skewed to 24 degrees the load area is reduced to:

$$1.8 \times 1.8 \times \cos 24^\circ = 2.96\text{m}^2$$

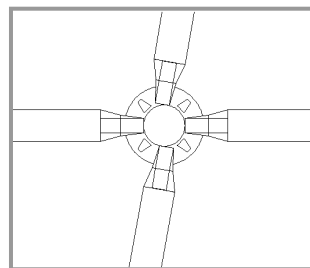


Fig.1 - Up to 22.5°

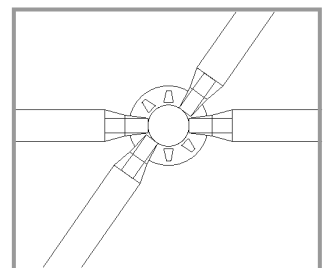


Fig.2 - 22.5° to 35°

Effect on Braces

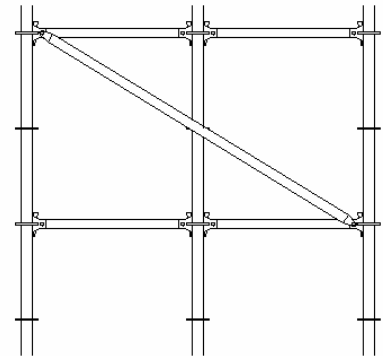
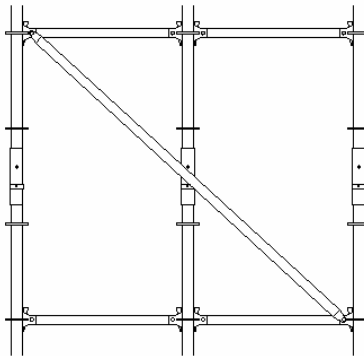
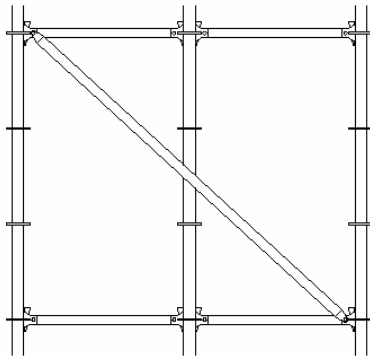
For skew grids the bracing planes to the standards are no longer at right angles to each other. Because of this the safe working loads of the braces in **both** directions should be de-rated by the cosine of the skew angle.

Care should be taken whilst detailing any head or base jack bracing. For skew angles over ten Degrees adjustable braces can only be used in one of the grid directions on the standard as the end pin will not mate with the ear plates on the Rapidshor base or head. If braces are required in both directions on a single standard use tube and fittings in one of the grid directions.

For skew angles up to 29 degrees all braces can be connected at a node point in the usual manner. Over 29 degrees skew, one end of braces should be connected to the ledger before the ledger is joined to the standard.

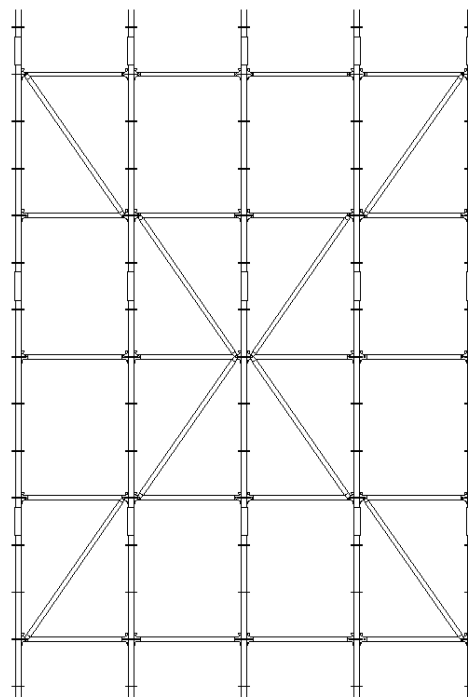
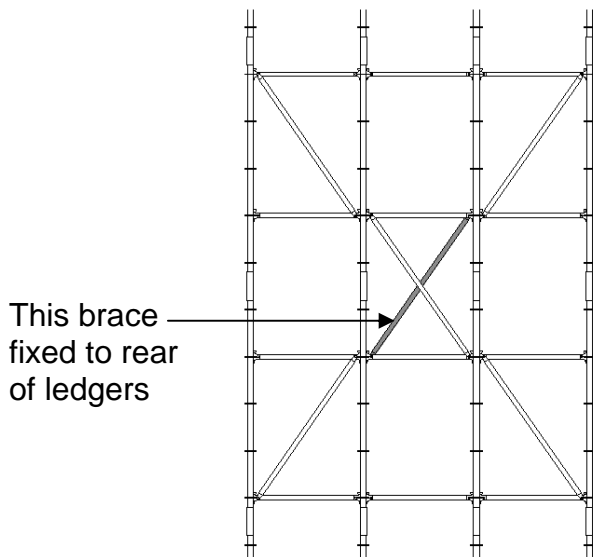
Bracing Over Multiple Bays

Braces can be placed over multiple bays provided they do not foul on the lug clusters or joint sleeves on the inner standards.



Double and Reversed Bracing

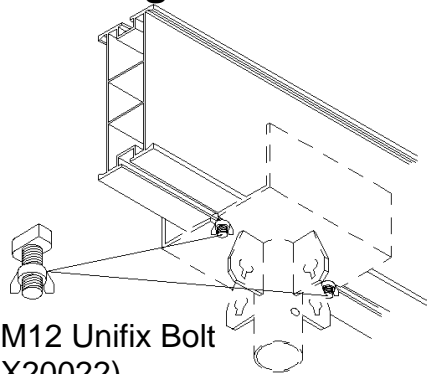
When braces are used in reversed pairs care should be taken to ensure that they cross within a bay and not at a node position as the design of the ledger does not permit 'dog-leg' bracing patterns.



Design Data - Eccentric Loads

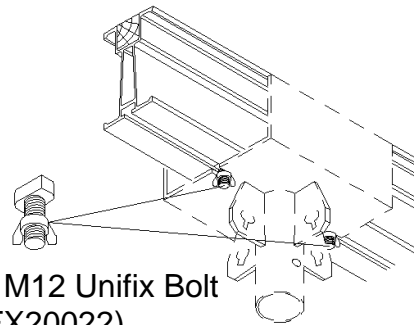
Allowable working loads are given with concentrically applied loads. Ensure that primary beams are secured in the middle of the U-head during assembly and fix in place as detailed.

Head Connection Single Albeam



2 x M12 Unifix Bolt
(AFX20022)
2 x M12 Wing Nut
(BNU12004)

Head Connection Single Alform



2 x M12 Unifix Bolt
(AFX20022)
2 x M12 Wing Nut
(BNU12004)

Where it is not possible to apply loads concentrically (for instance in the case of lapped primary beams) checks shall be carried out to ensure that the structure can carry the combined axial load and bending moments applied using the formula:

$$\frac{F_c}{P_c} + \frac{F_{bc}}{P_{bc}} \leq 1$$

Where F_c is the applied axial load, P_c is the maximum allowable axial load from the graphs on sheets 30-33, F_{bc} is the applied bending moment = ($F_c \times e$, where e is the load eccentricity) and P_{bc} is the moment capacity of the Rapidshor Jack = 1.29kNm

Mobile Falsework Tables

Rapidshor may be used in crane handled table applications. Take the following measures during design and indicate these requirements of this instruction clearly on the scheme drawing.

Lifting Points

Show the lifting equipment attached around the Rapidshor Standards immediately beneath a node having Rapidshor Ledgers attached. Do not attach the lifting equipment to the soffit formwork or the head jacks.

Stability

Check the ability of the assembly to span between the lifting points and introduce additional Rapidshor Braces where required. If the lifting equipment consists of inclined chains, check the affect of the compressive forces generated in the Rapidshor ledgers during the lift. Add tube and fitting plan bracing at the base of the structure. Check the rotational stability of the table assembly in flight.

Joints in Standards

Rapidshor Standards are joined using Joint Sleeves secured to the standard with a Rapidshor Sleeve Clip. Where Rapidshor is to be crane handled, add a second Rapidshor Sleeve Clip to the joint sleeve. This operation needs to be done with the progress of erection otherwise the holes in the sleeve and the standard will be unlikely to line up.

Base Jacks

A common way to secure the base jacks into the standards during lifting is to use radial slices cut from a tyre inner tube. These need to be placed over the base lift ledgers during erection and are used to bungee the jack handles to the bottom ledgers prior to crane handling.

The Spring Retainer within the Rapidshor Jack is used to join the unit to Rapidshor Heads and Bases during non-crane handled applications and prevents the jack stem from rotating during the stripping operation. Where Rapidshor falsework or tables are to be crane handled, replace the Spring Retainers in the Rapidshor Base Jacks with M12x 80 bolts with Nylok Nuts. This operation will need to be carried out by the Branch prior to dispatch of the equipment and reversed by the Branch during return as special tools are required.

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